FAA23051-R. 3248. A

Nikon F4

REPAIR MANUAL

修 理 指 針

Nikon | NIKON CORPORATION
Tokyo, Japan

Exploded Drawings & Parts List

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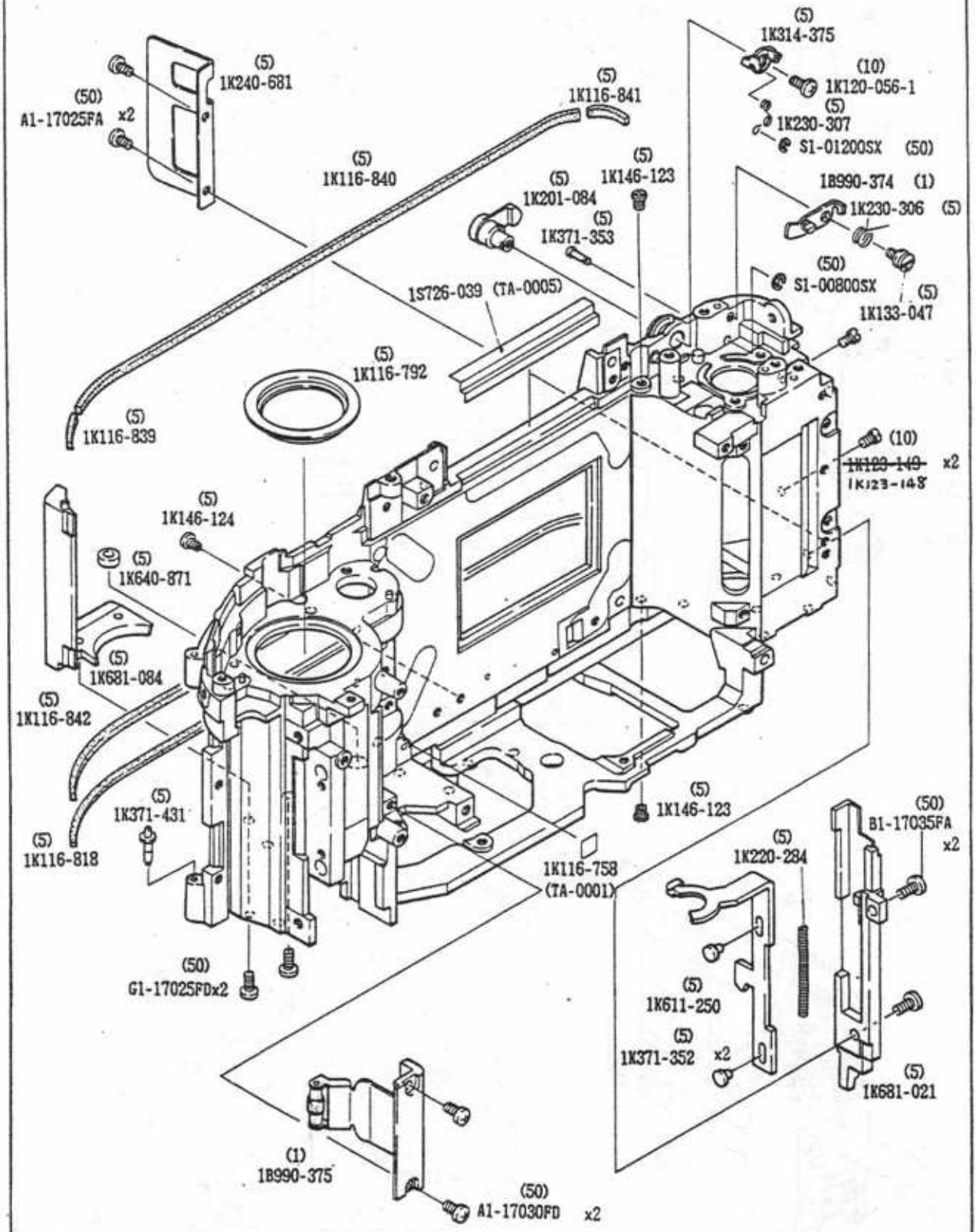
* Number in parentheses in the Exploded Drawings refer to the Quantity per order.
Numbers (TA-****) are order numbers of adhesive tape. (For the order of adhesive tape, the number 1K***-*** is not in use.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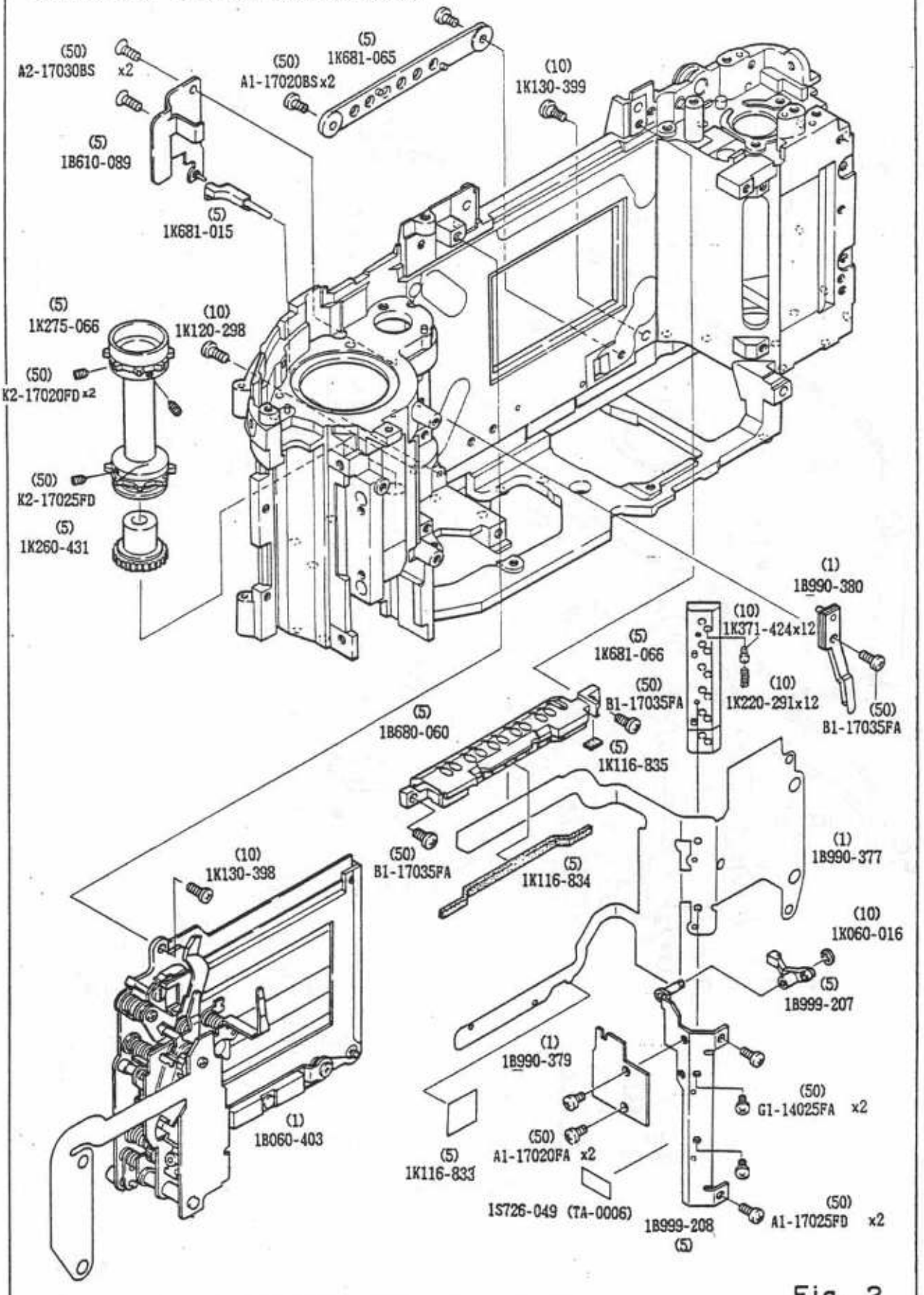
S1-01200SX (50)
1B990-374 (1)
1K230-306 (5)
(50) S1-00800SX
(5) 1K133-047
(5) 1K240-681
(50) A1-17025FA x2
(5) 1K116-841
(5) 1K116-840
(5) 1K146-123
(5) 1K201-084
(5) 1K371-353
1S726-039 (TA-0005)
(5) 1K116-792
(5) 1K116-839
(10) 1K123-148 x2
(5) 1K146-124
(5) 1K640-871
(5) 1K681-084
(5) 1K116-842
(5) 1K116-818
(5) 1K371-431
(50) G1-17025FDx2
(5) 1K146-123
1K116-758 (TA-0001)
(50) B1-17035FA x2
(5) 1K220-284
(5) 1K611-250
(5) 1K371-352 x2
(5) 1K681-021
(1) 1B990-375
(50) A1-17030FD x2

Fig. 1

FAA23051-R.3248.A

SHUTTER UNIT, FD.DB.DX.FPC UNIT, SPROCKET



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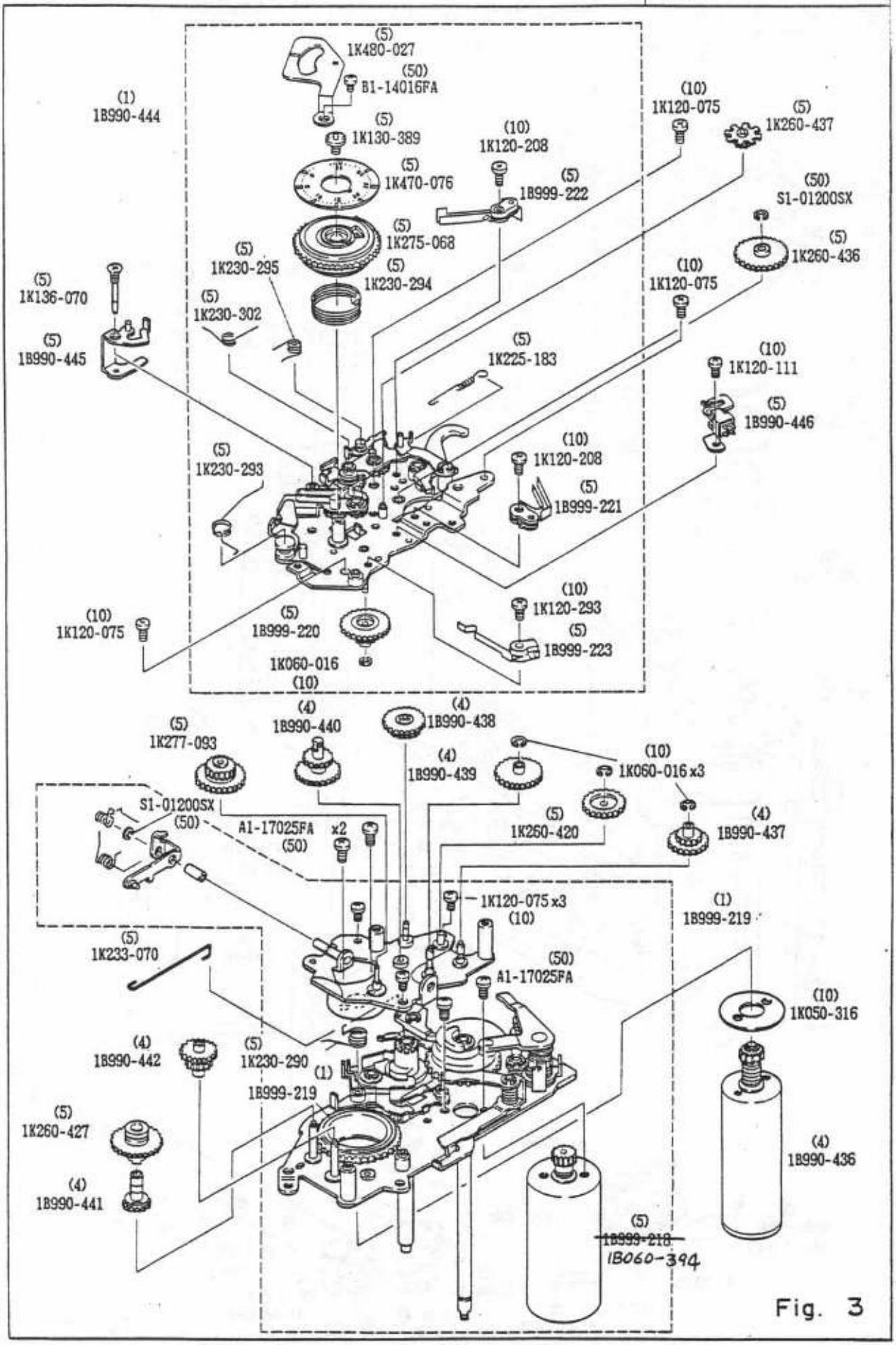
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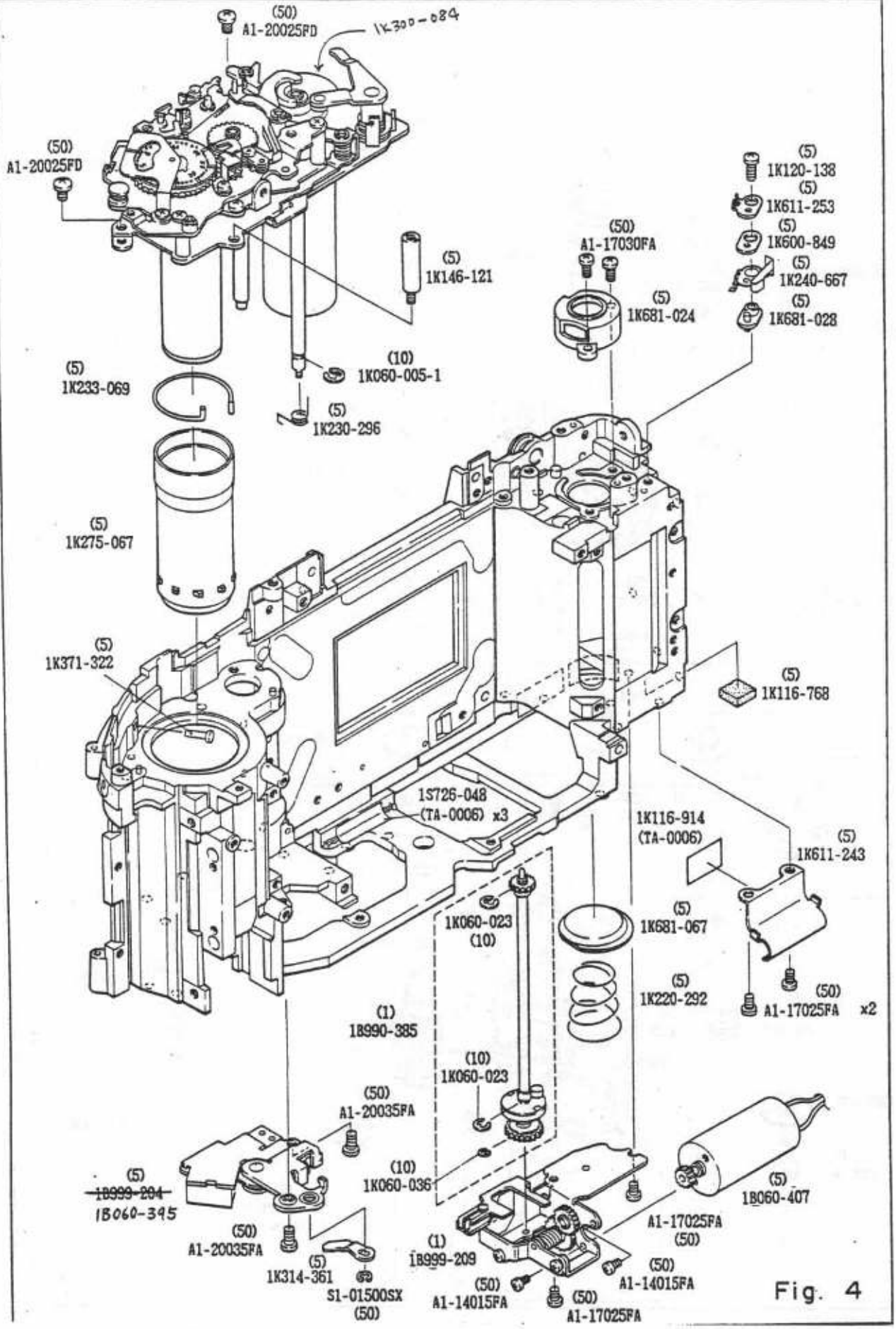
(5) 1K275-068
(5) 1K230-295
(5) 1K230-294
(5) 1K136-070
(5) 1K230-302
(5) 1B990-445
(5) 1K225-183
(5) 1K230-293
(10) 1K120-208
(5) 1B999-221
(10) 1K120-075
(5) 1B999-220
1K060-016 (10)
(10) 1K120-293
(5) 1B999-223
(10) 1K120-075
(5) 1K260-437
(50) S1-01200SX
(5) 1K260-436
(10) 1K120-075
(10) 1K120-111
(5) 1B990-446
(4) 1B990-440
(4) 1B990-438
(5) 1K277-093
(4) 1B990-439
(10) 1K060-016 x3
S1-01200SX (50)
A1-17025FA x2 (50)
(5) 1K260-420
(4) 1B990-437
1K120-075 x3 (10)
(1) 1B999-219
(5) 1K233-070
(50) A1-17025FA
(10) 1K050-316
(4) 1B990-442
(5) 1K230-290
(1) 1B999-219
(5) 1K260-427
(4) 1B990-436
(4) 1B990-441
(5) ~~1B999-218~~ 1B060-394

Fig. 3

巻き戻しモーター部，レリーズMG　REWIND MOTOR UNIT, RELEASE MG

FAA23051-R3248.A



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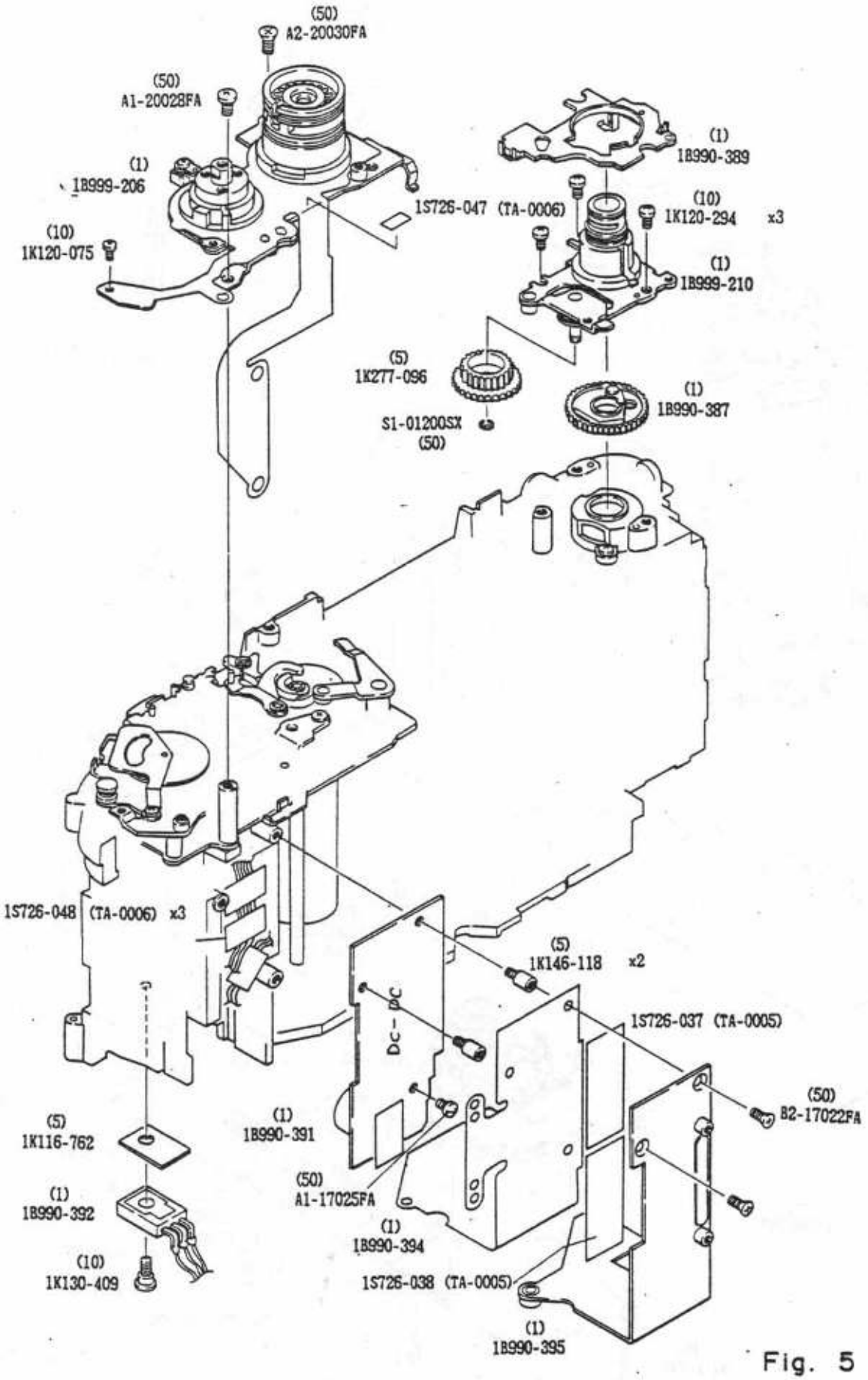
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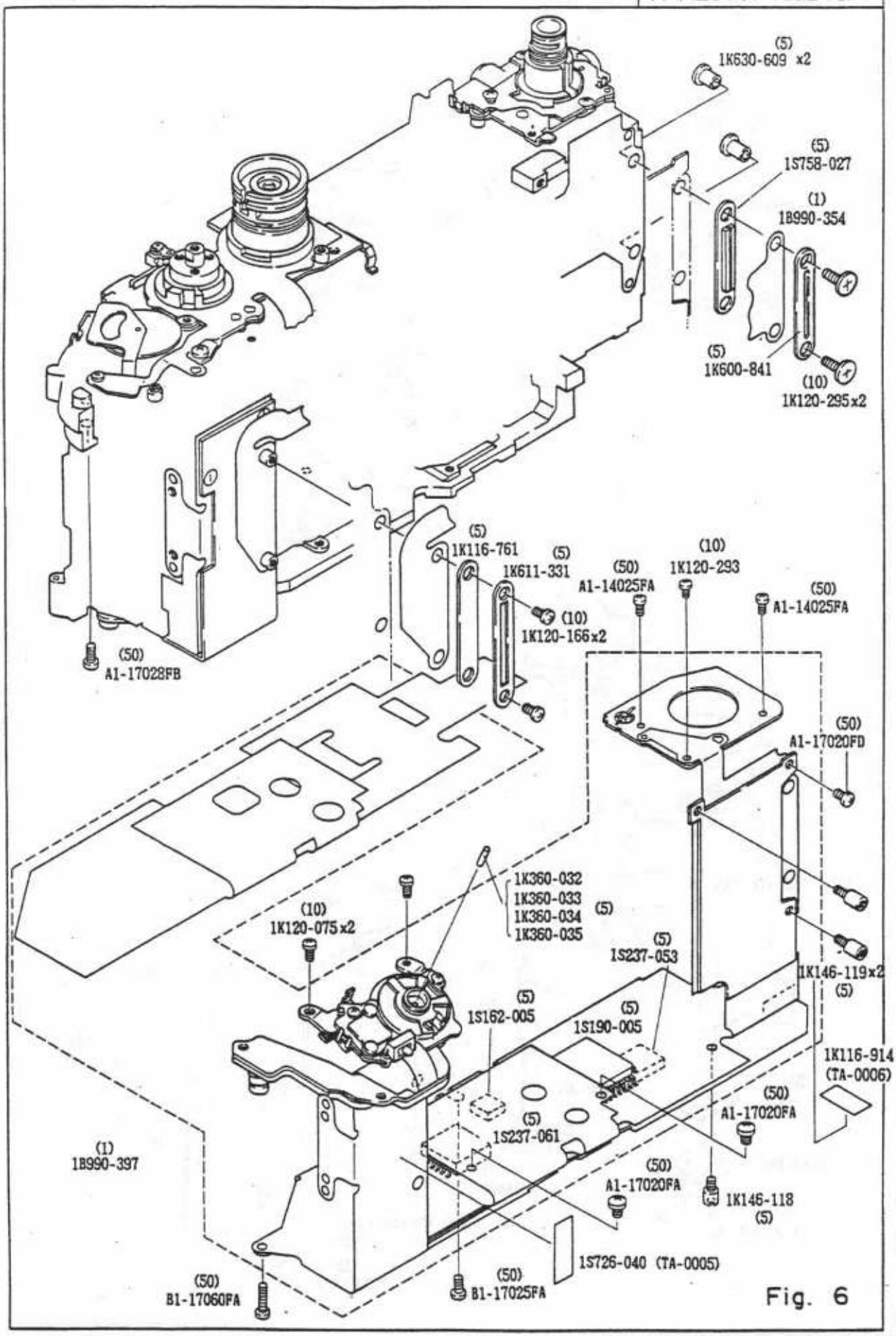
(50)
A1-20028FA
(1)
1B999-206
(10)
1K120-075
1S726-047 (TA-0006)
(1)
1B990-389
(10)
1K120-294 x3
(1)
1B999-210
(5)
1K277-096
S1-01200SX
(50)
(1)
1B990-387
1S726-048 (TA-0006) x3
(5)
1K146-118 x2
Dc-DC
1S726-037 (TA-0005)
(50)
B2-17022FA
(5)
1K116-762
(1)
1B990-391
(50)
A1-17025FA
(1)
1B990-392
(10)
1K130-409
(1)
1B990-394
1S726-038 (TA-0005)
(1)
1B990-395

Fig. 5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1K630-609 x2
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1S758-027
(1)
1B990-354
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1K600-841
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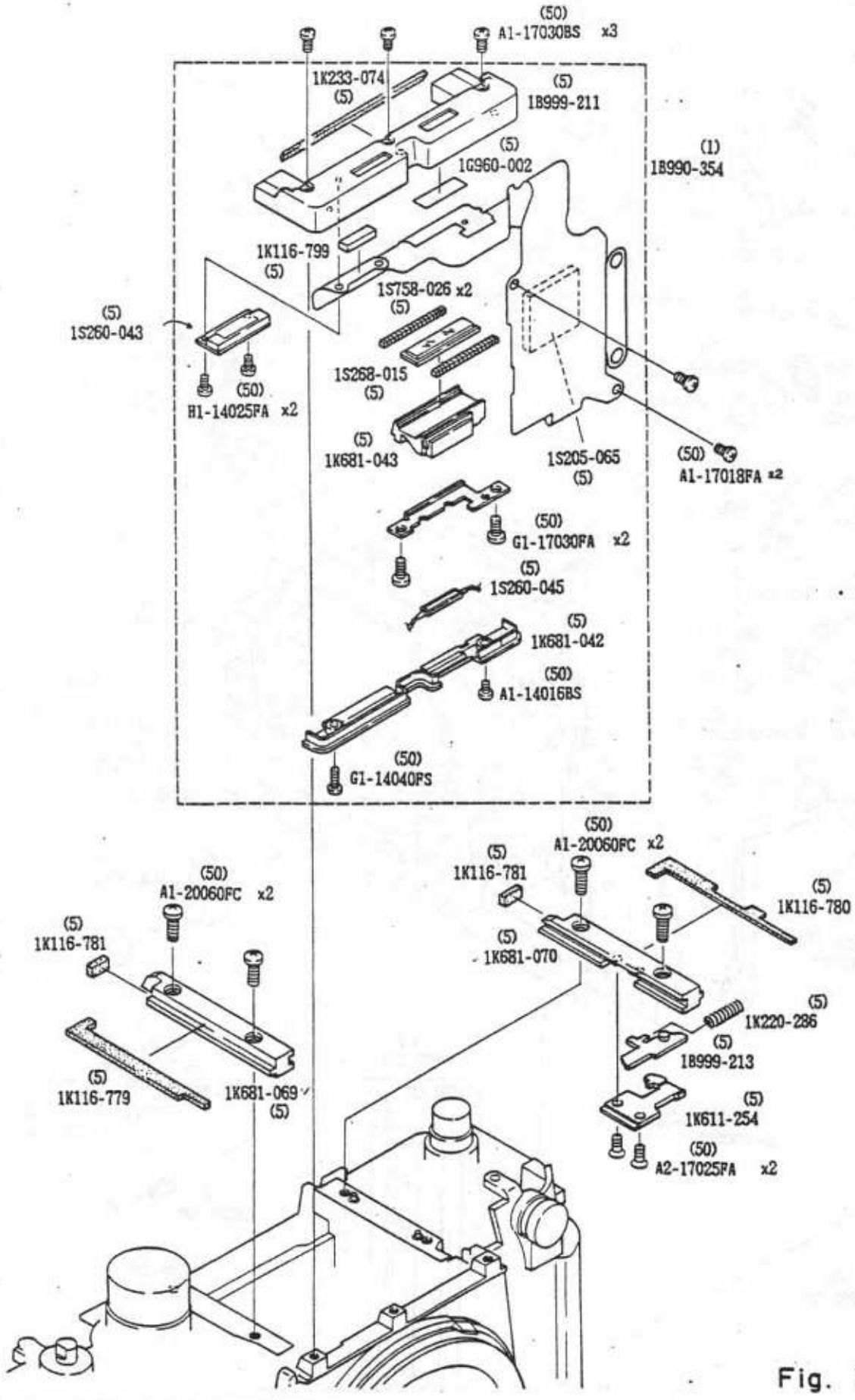
1K120-295x2
(5)
1K116-761
(5)
1K611-331
(10)
1K120-166x2
(50)
A1-14025FA
(10)
1K120-293
(50)
A1-14025FA
(50)
A1-17028FB
(50)
A1-17020FD
1K360-032
1K360-033
1K360-034
1K360-035
(5)
(10)
1K120-075x2
(5)
1S237-053
1K146-119x2
(5)
(5)
1S162-005
(5)
1S190-005
1K116-914
(TA-0006)
(50)
A1-17020FA
(5)
1S237-061
(1)
1B990-397
(50)
A1-17020FA
1K146-118
(5)
1S726-040 (TA-0005)
(50)
B1-17060FA
(50)
B1-17025FA

Fig. 6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1K233-074
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1B999-211
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1G960-002
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1B990-354
1K116-799
(5)
1S758-026 x2
(5)
(5)
1S260-043
1S268-015
(5)
(50)
H1-14025FA x2
(5)
1K681-043
1S205-065
(5)
(50)
A1-17018FA x2
(50)
G1-17030FA x2
(5)
1S260-045
(5)
1K681-042
(50)
A1-14016BS
(50)
G1-14040FS
(50)
A1-20060FC x2
(5)
1K116-781
(5)
1K116-779
1K681-069
(5)
(50)
A1-20060FC x2
(5)
1K116-781
(5)
1K116-780
(5)
1K681-070
(5)
1K220-286
(5)
1B999-213
(5)
1K611-254
(50)
A2-17025FA x2

Fig. 7

FAA23051-R.3248.A

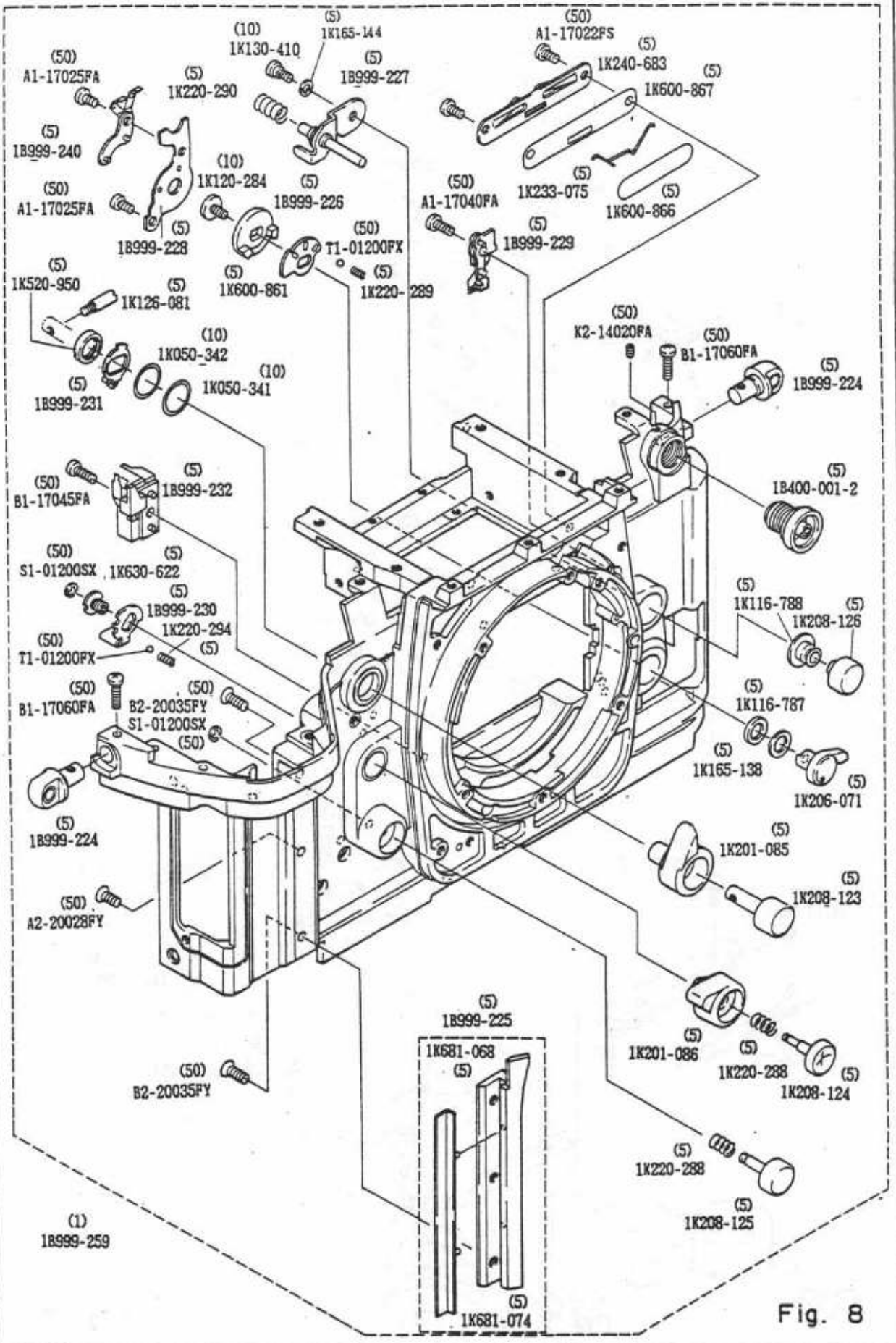
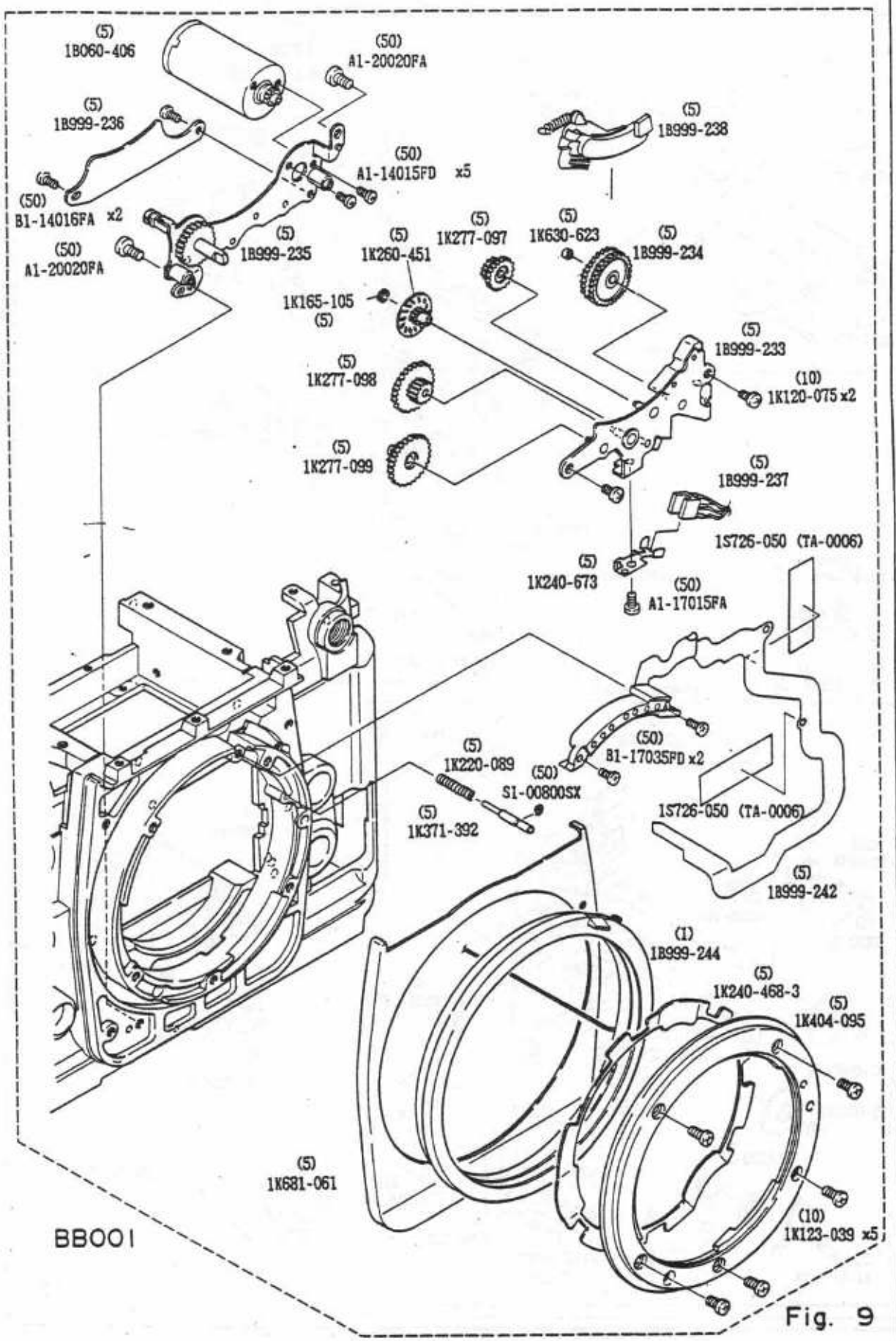


Fig. 8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A1-20020FA
(5)
1B999-236
(5)
1B999-238
(50)
A1-14015FD x5
(50)
B1-14016FA x2
(5)
1B999-235
(50)
A1-20020FA
(5)
1K260-451
(5)
1K277-097
(5)
1K630-623
(5)
1B999-234
1K165-105
(5)
(5)
1K277-098
(5)
1B999-233
(10)
1K120-075 x2
(5)
1K277-099
(5)
1B999-237
1S726-050 (TA-0006)
(5)
1K240-673
(50)
A1-17015FA
(5)
1K220-089
(50)
S1-00800SX
(5)
1K371-392
(50)
B1-17035FD x2
1S726-050 (TA-0006)
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1B999-242
(1)
1B999-244
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1K681-061
(10)
1K123-039 x5
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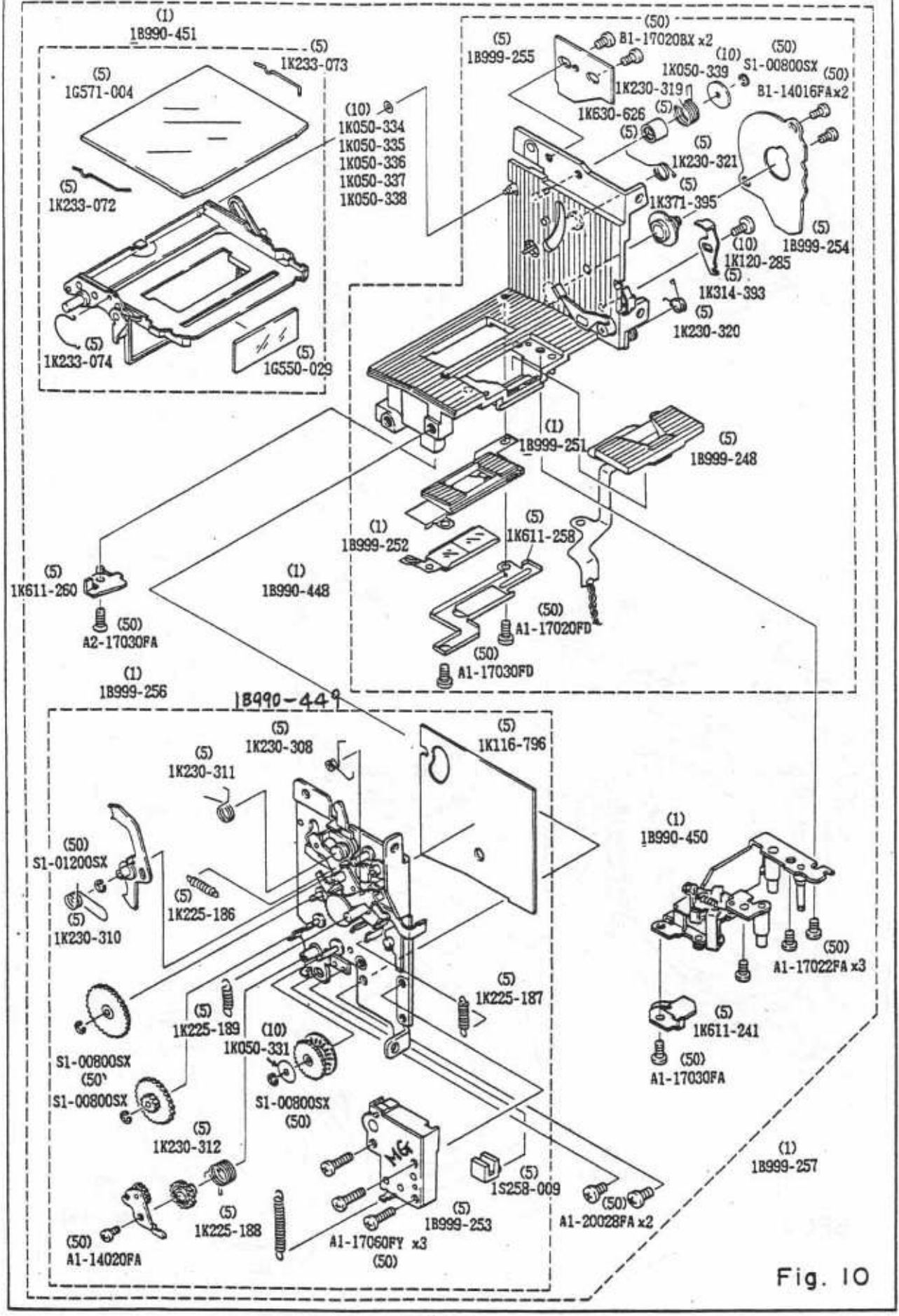
Fig. 9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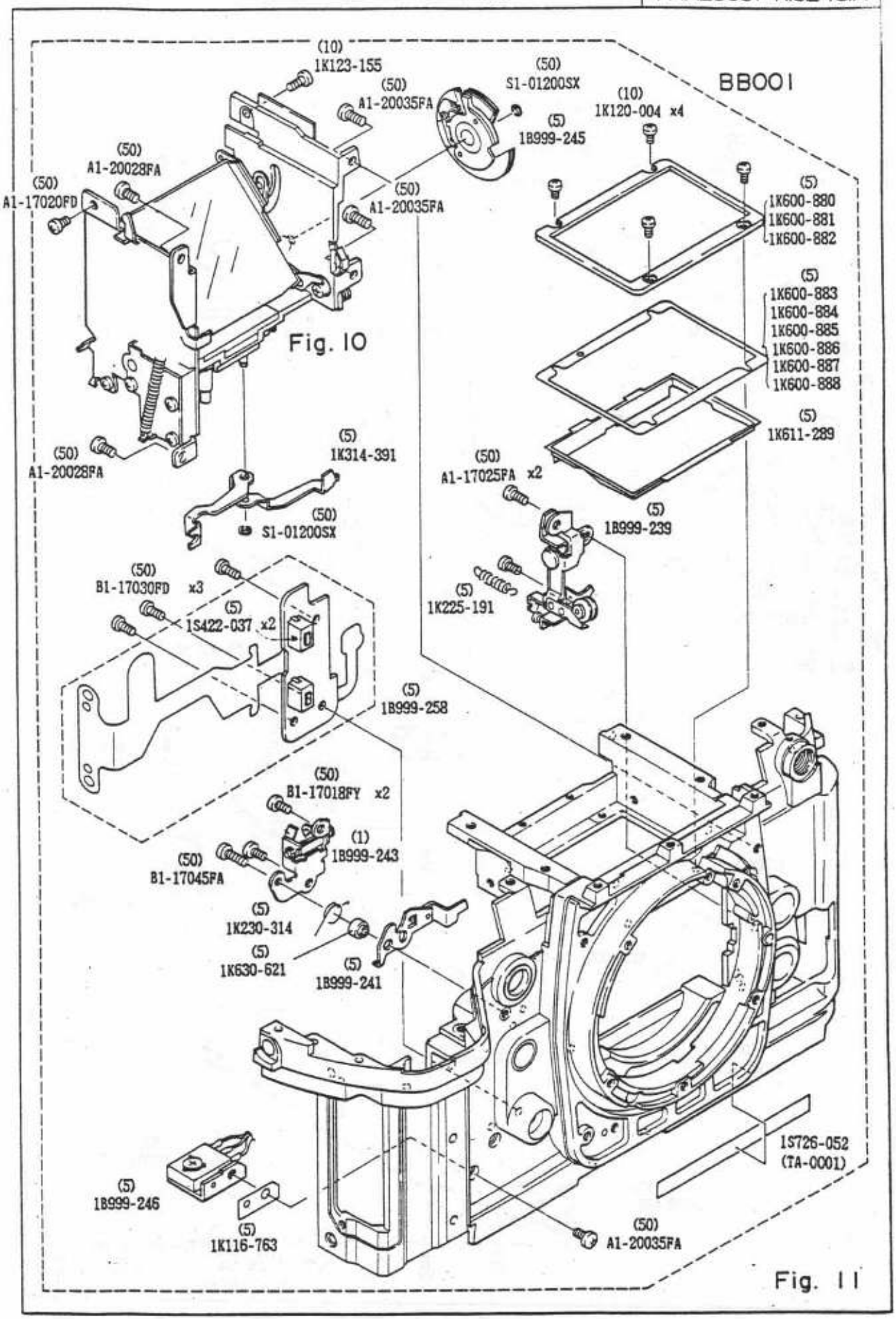
(50) B1-17020BX x2
(5) 1B999-255
(10) 1K050-339
(50) S1-00800SX
(50) B1-14016FA x2
1K230-319
1K630-626
(5)
(5) 1K230-321
(5) 1K371-395
(5) 1B999-254
(10) 1K120-285
(5) 1K314-393
(5) 1K230-320
(1) 1B999-251
(5) 1B999-248
(1) 1B999-252
(5) 1K611-258
(5) 1K611-260
(1) 1B990-448
(50) A2-17030FA
(50) A1-17020FD
(50) A1-17030FD
(1) 1B999-256
1B990-449
(5) 1K230-308
(5) 1K230-311
(5) 1K116-796
(50) S1-01200SX
(5) 1K230-310
(5) 1K225-186
(1) 1B990-450
(50) A1-17022FA x3
(5) 1K225-187
(5) 1K225-189
(10) 1K050-331
S1-00800SX (50)
S1-00800SX (50)
S1-00800SX (50)
(5) 1K611-241
(50) A1-17030FA
(5) 1K230-312
(5) 1K225-188
(50) A1-14020FA
(5) 1B999-253
A1-17060FY x3 (50)
(5) 1S258-009
(50) A1-20028FA x2
(1) 1B999-257

Fig. 10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(5) 1B999-245
(10) 1K120-004 x4
(50) A1-20028FA
(50) A1-17020FD
(50) A1-20035FA
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1K600-881
1K600-882
(5) 1K600-883
1K600-884
1K600-885
1K600-886
1K600-887
1K600-888
(5) 1K611-289
Fig. 10
(5) 1K314-391
(50) A1-20028FA
(50) S1-01200SX
(50) A1-17025FA x2
(5) 1B999-239
(5) 1K225-191
(50) B1-17030FD x3
(5) 1S422-037 x2
(5) 1B999-258
(50) B1-17018FY x2
(1) 1B999-243
(50) B1-17045FA
(5) 1K230-314
(5) 1K630-621
(5) 1B999-241
1S726-052 (TA-0001)
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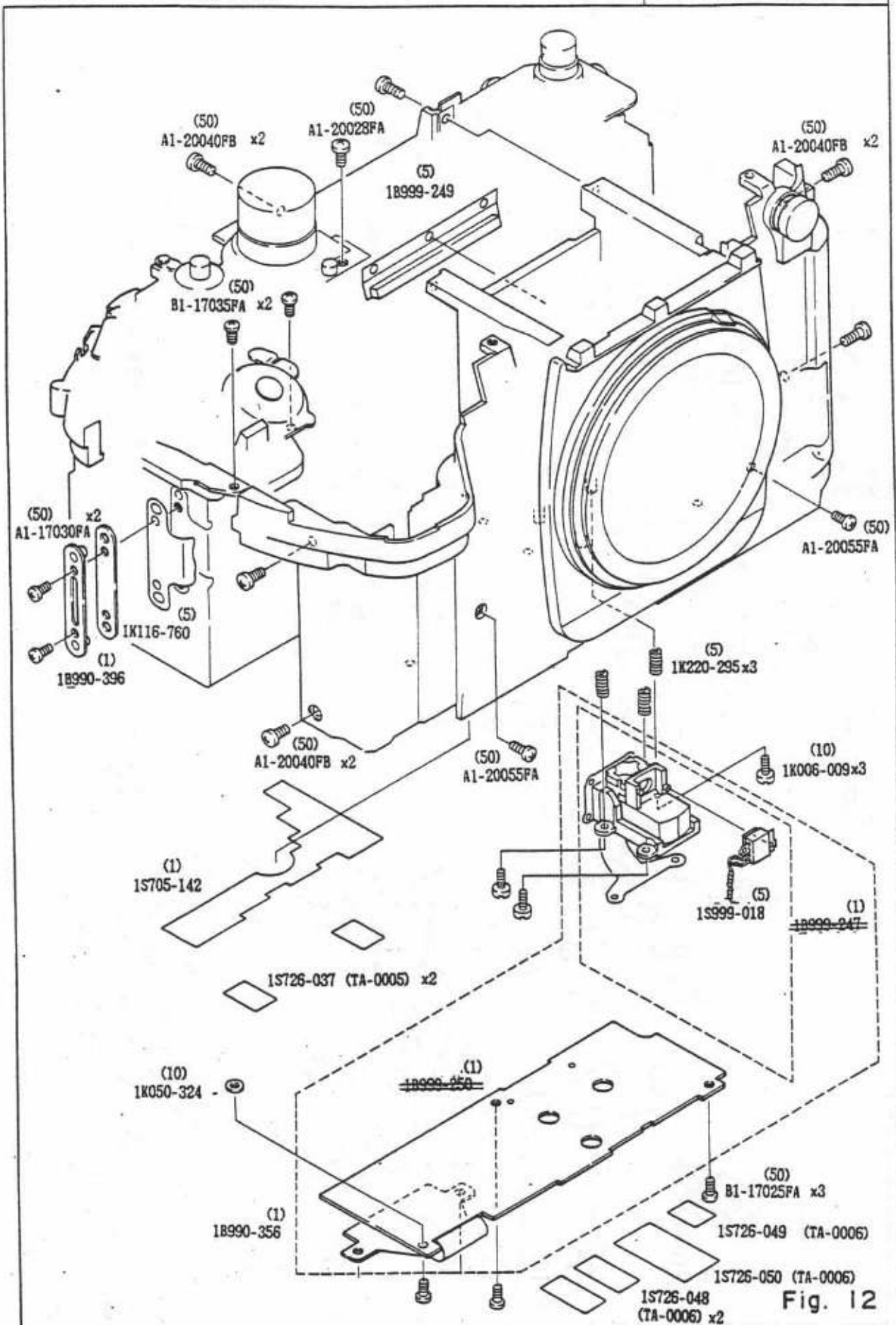
(5) 1K116-763
(50) A1-20035FA
Fig. 11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B1-17035FA x2
(50) x2
A1-17030FA
(5)
1K116-760
(1)
1B990-396
(50)
A1-20055FA
(5)
1K220-295 x3
(50)
A1-20040FB x2
(50)
A1-20055FA
(10)
1K006-009 x3
(1)
1S705-142
(5)
1S999-018
(1)
1B999-247
1S726-037 (TA-0005) x2
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1K050-324
(1)
1B999-250
(50)
B1-17025FA x3
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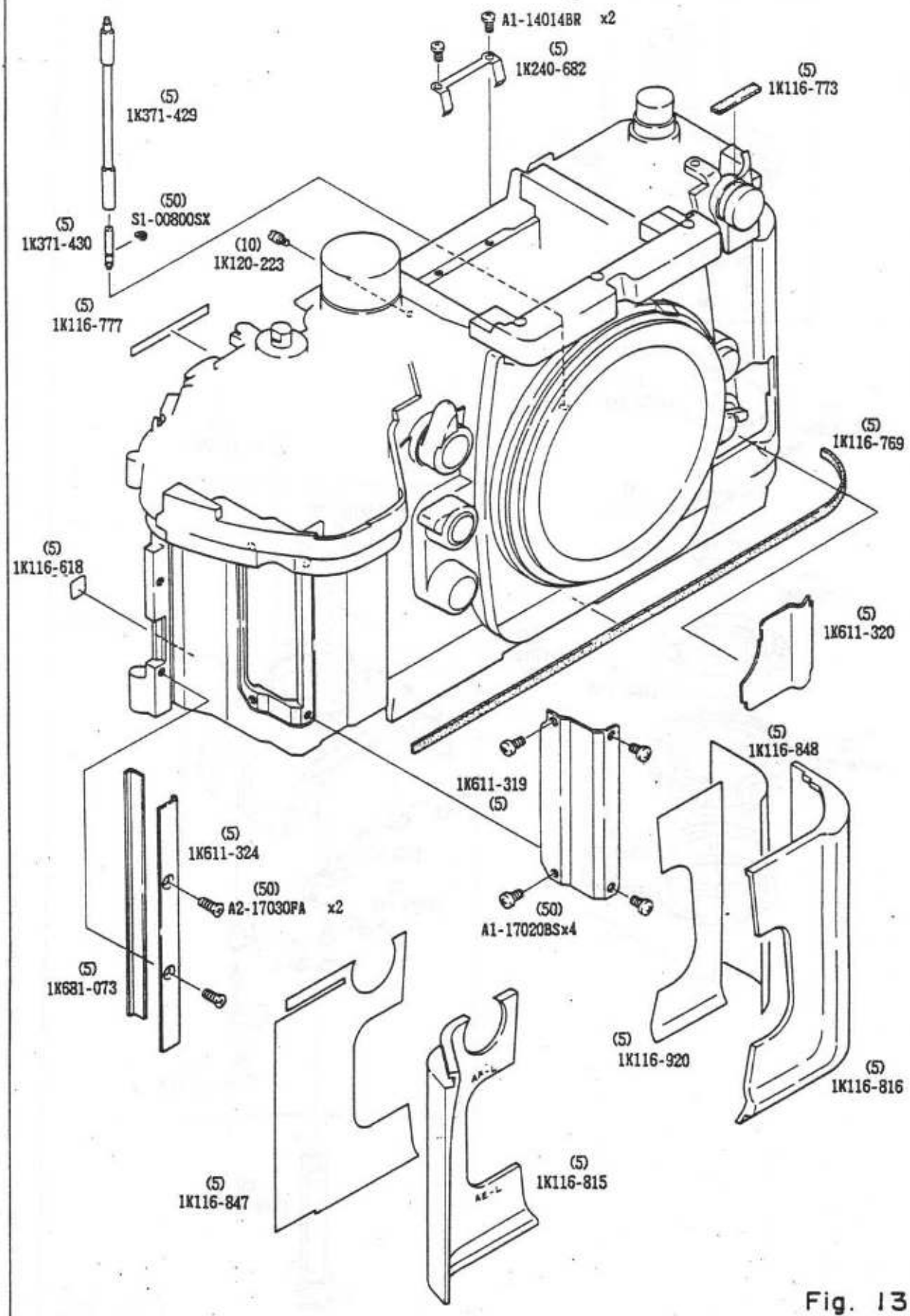
1S726-048
(TA-0006) x2

Fig. 12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1K116-773
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1K371-429
(50)
S1-00800SX
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1K371-430
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1K120-223
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1K116-777
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1K116-769
(5)
1K116-618
(5)
1K611-320
1K611-319
(5)
(5)
1K116-848
(5)
1K611-324
(50)
A2-17030FA x2
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A1-17020BSx4
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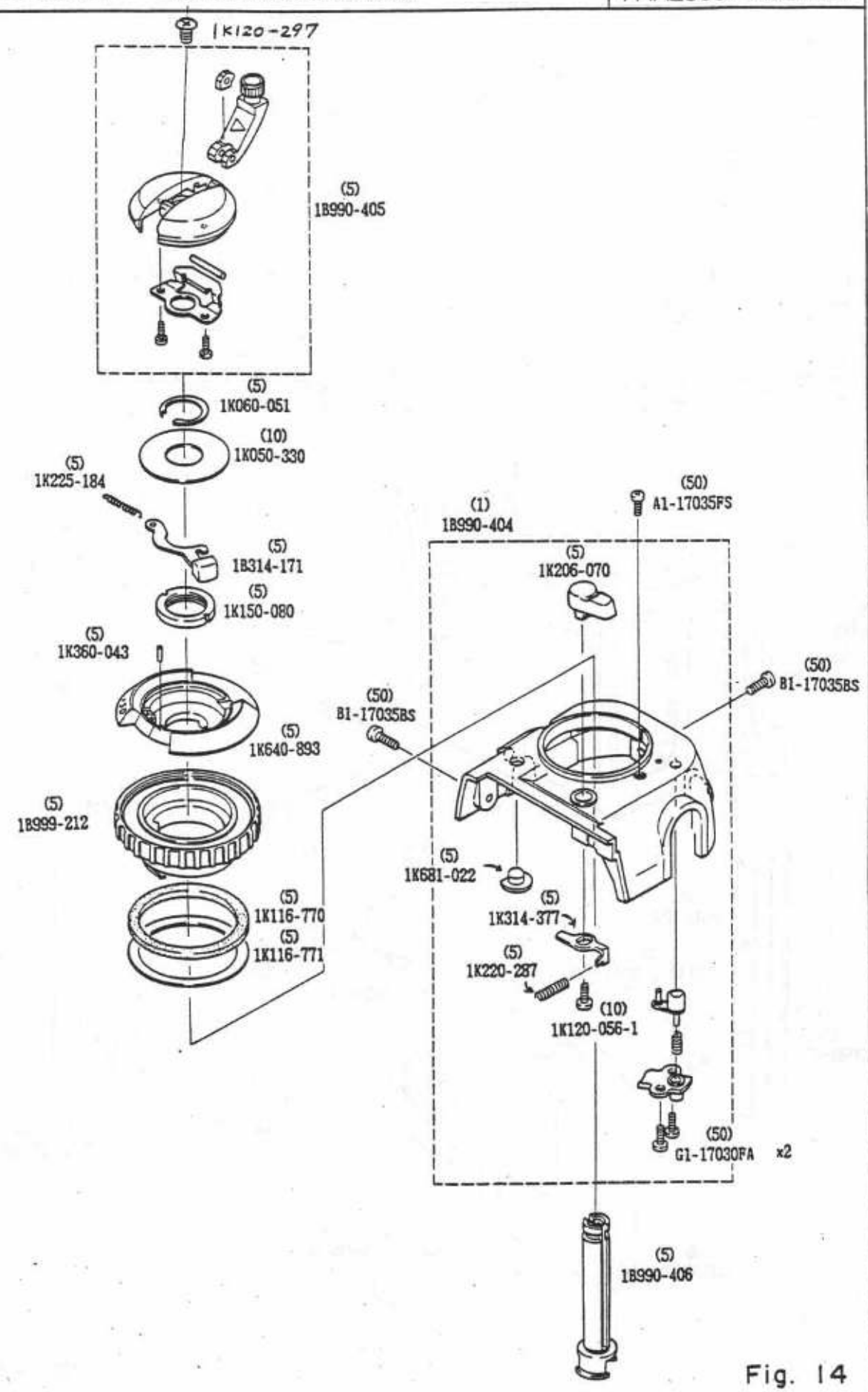
1K116-815

Fig. 13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1K050-330
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1K225-184
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1B314-171
(5)
1K150-080
(5)
1K360-043
(5)
1K640-893
(5)
1B999-212
(5)
1K116-770
(5)
1K116-771
(1)
1B990-404
(50)
A1-17035FS
(5)
1K206-070
(50)
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B1-17035BS
(5)
1K681-022
(5)
1K314-377
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1K220-287
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G1-17030FA
×2
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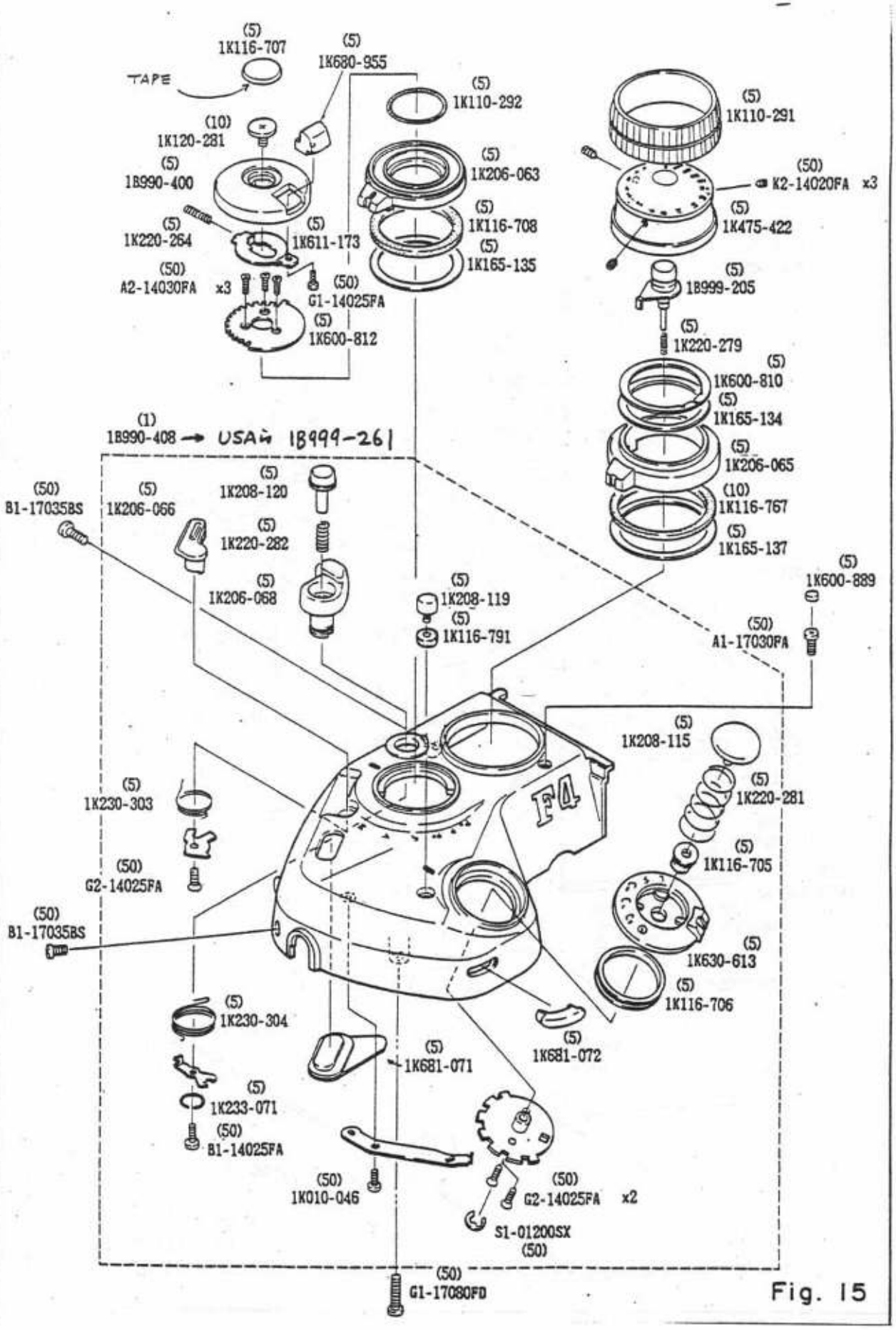
1B990-406

Fig. 14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(10) 1K120-281
(5) 1B990-400
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(5) 1K165-135
(5) 1K220-264
(5) 1K611-173
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(50) G1-14025FA
(5) 1K600-812
(5) 1K110-291
(50) K2-14020FA x3
(5) 1K475-422
(5) 1B999-205
(5) 1K220-279
(5) 1K600-810
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(5) 1K206-065
(10) 1K116-767
(5) 1K165-137
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(5) 1K116-791
(5) 1K600-889
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(5) 1K220-281
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(5) 1K630-613
(5) 1K116-706
(5) 1K230-303
(50) G2-14025FA
(50) B1-17035BS
(5) 1K230-304
(5) 1K233-071
(50) B1-14025FA
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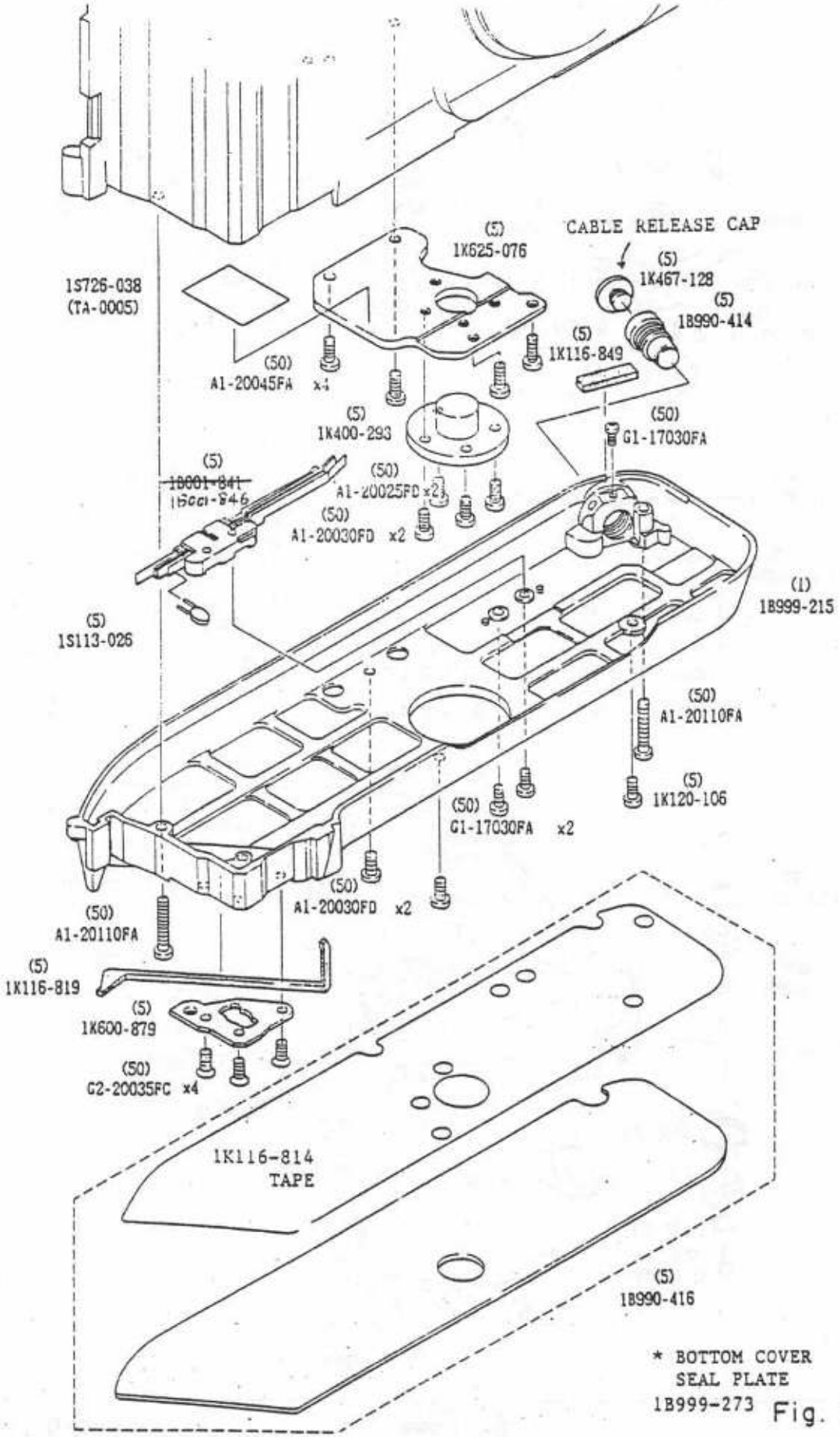
F4

Fig. 15


CABLE RELEASE CAP
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(5) 1K467-128
(5) 1B990-414
(5) 1K116-849
1S726-038 (TA-0005)
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(5) 1K400-293
(50) G1-17030FA
(5) 1B001-841
(50) A1-20025FD x2
(50) A1-20030FD x2
(1) 1B999-215
(5) 1S113-026
(50) A1-20110FA
(5) 1K120-105
(50) G1-17030FA x2
(50) A1-20030FD x2
(50) A1-20110FA
(5) 1K116-819
(5) 1K600-879
(50) G2-20035FC x4
1K116-814 TAPE
(5) 1B990-416
* BOTTOM COVER SEAL PLATE 1B999-273

Fig. 16

FAA23051-R3248A

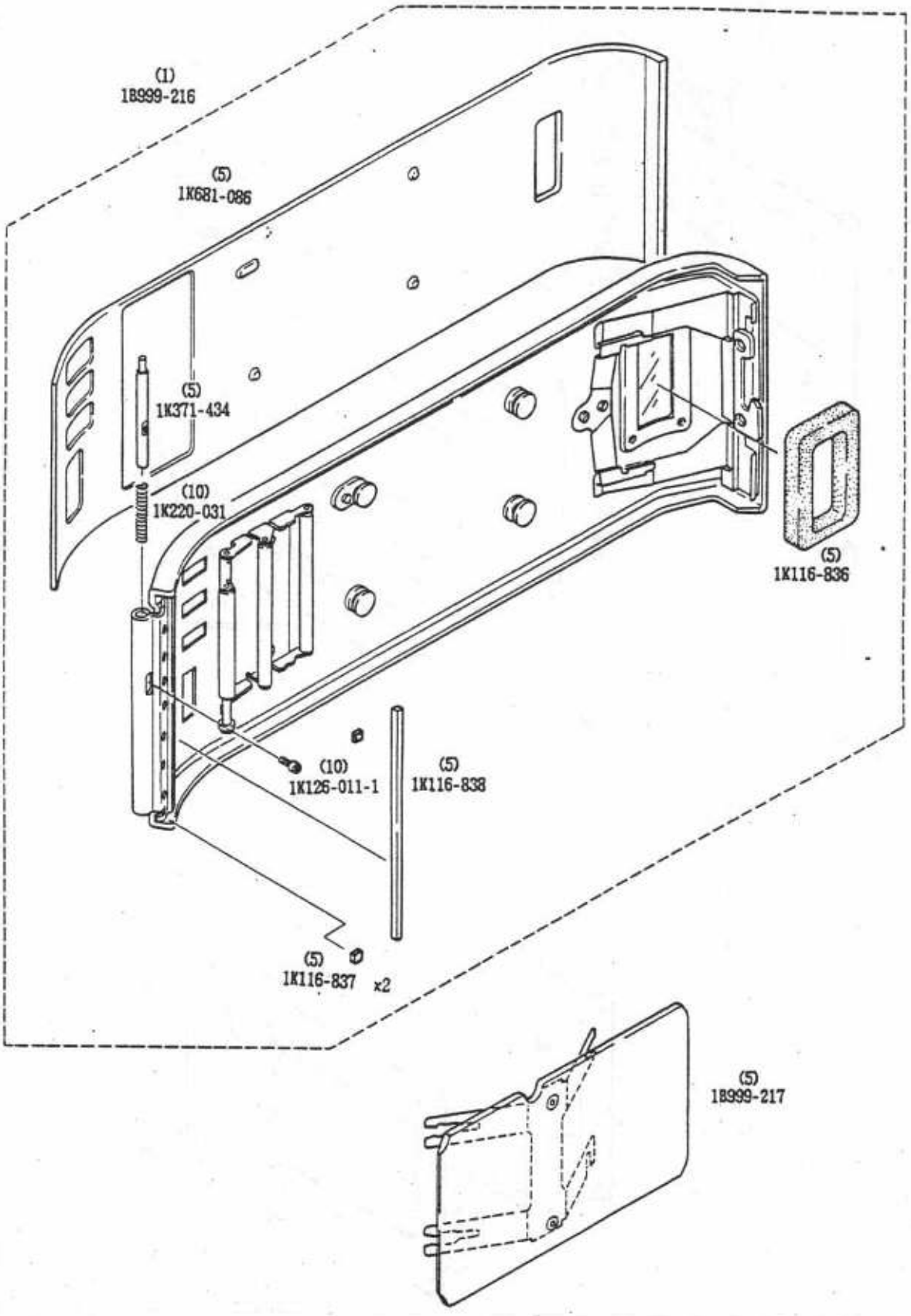

Fig. 17

1B060-403

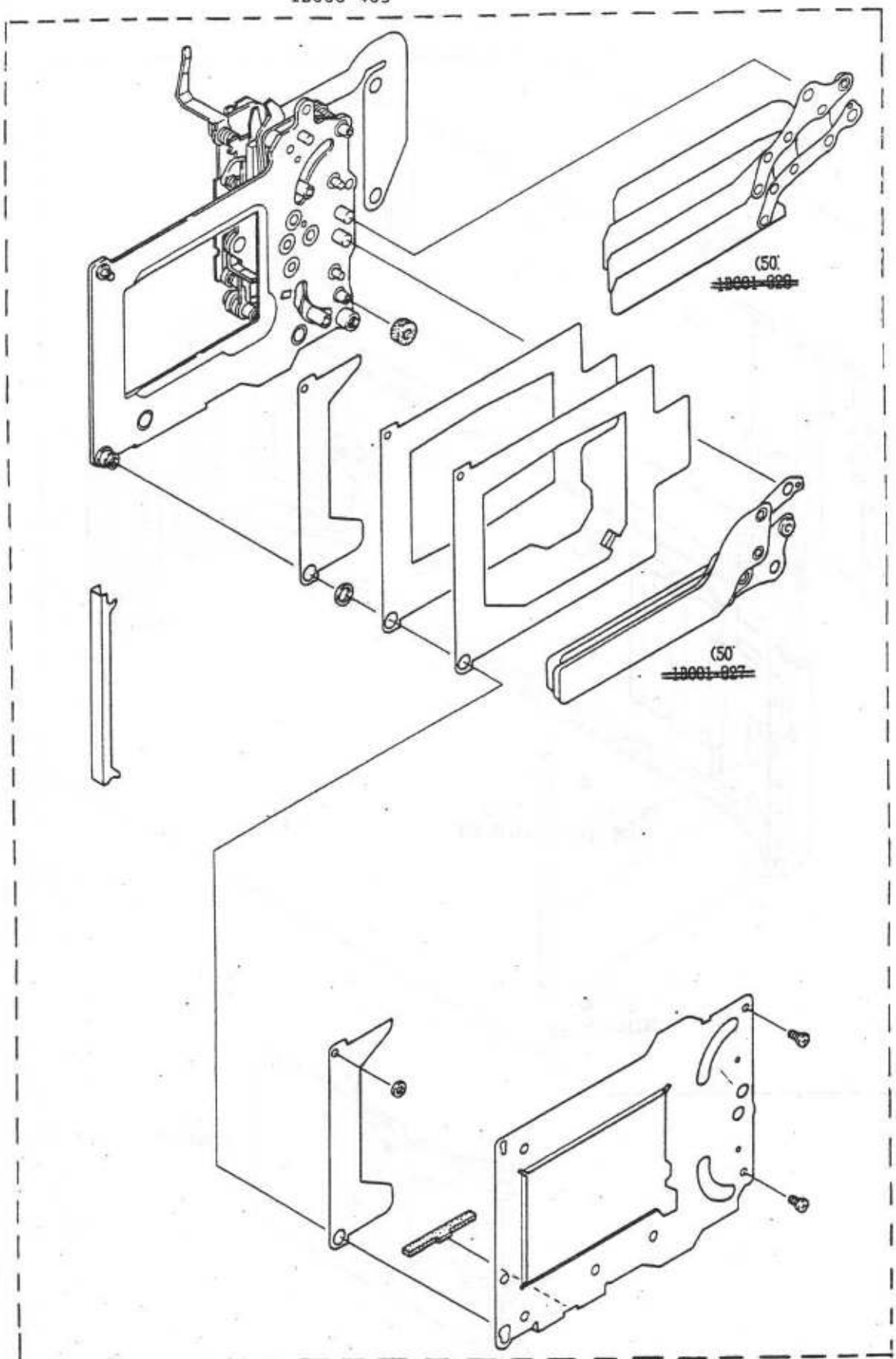

Fig. 18

部組品表 Assembly List

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	構成部品番号 Constituent parts	参照図番 Fig.	備考 Remarks	要求単位 Q'ty per order
1K050-317		RETAINER FOR MAIN SHAFT		89F-2023		$0.08	
1K070-022		RETAINER FOR CHARGE CAM SHAFT		"		$2.85	
1K300-084		CHARGE CAM		"		$0.92	
1K630-588		COLOR FOR CAM		"		$0.15	
1K681-013		CHARGE COMPLETION SW LEVER		"		$0.15	
1K116-797		MIRROR UP SPONGE		"		$0.08	
1K116-814		DOUBLE ADHESIVE TAPE (BOTTOM COVER)		"		$0.08	
1K220-285-1		SPRING		89F-1019		$0.08	
1K681-023		COVER FOR ISO LOCK		"		$0.15	
1K264-010-1		GEAR		89F-2019		$0.46	
1B990-357		MPX-2 BASE PLATE		89F-2014		$10.46	
RS02183J2A		RESISTER(18KOHM)		89F-1014		$0.08	

部品表 Parts List

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K006-009	302	AFセンサー調整ビス AF sensor adjustment screw	2		12	○		10
*1K010-046	1115	タップタイトネジ screw	1	1B990-408 1B999-261 (FAA23151)	15	○△		50
1K050-316	476	スプールモータ座金 Spool motor washer	1		3	○		10
1K050-325	846A	3ツコロクラッチガタ取りワッシャ t=0.05 Washer	0	1B990-385	4	○△		10
1K050-324	692	AF基板取付ワッシャー AF base plate washer	1		12	○		10
1K050-326	846B	〃 t=0.1	0	1B990-385	4	○△		10
1K050-327	846C	〃 t=0.2	0	1B990-385	4	○△		10
1K050-330	912	飾り板 Plate	1		14	○		10
1K050-331	88	ラチェット押えワッシャ Washer	1	1B990-449 1B999-257 1B999-259	10	○△		10
1K050-334	227A	主ミラーガタ取りワッシャ t=0.1 Washer	0	1B999-257 1B999-259	10	○△		10
1K050-335	227B	〃 t=0.05	0	1B999-257 1B999-259	10	○△		10
1K050-336	227C	〃 t=0.15	0	1B999-257 1B999-259	10	○△		10
1K050-337	227D	〃 t=0.2	0	1B999-257 1B999-259	10	○△		10
1K050-338	227E	〃 t=0.3	0	1B999-257 1B999-259	10	○△		10
1K050-339	259	ミラーダウンばねワッシャ Mirror-down sping washer	1	1B990-448 1B999-257 1B999-259	10	○△		10
1K050-341	199A	ミラーアップガタ取りワッシャ t=0.05 Washer	0	1B999-259	8	○△		10
1K050-342	199B	ミラーアップガタ取りワッシャ t=0.1 Washer	0	1B999-259	8	○△		10
*1K060-005-1	1101	E リング E-ring	2		4	○		10
*1K060-016	1102	E リング E-ring	7	1B990-444	2.3	○△		10

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
*1K060-023	1103	Eリング E-ring	2		4	○△		10
*1K060-036	1104	Eリング E-ring	2		4	○△		10
1K060-051	1131	軸止め輪 Stopper ring	1		14	○		5
1K110-291	716	Tダイアルローレットゴム Shutter dial roulette rubber	1		15	○		5
1K110-292	441	モードレバーOリング Mode lever O-ring	1		15	○		5
1K116-618	436	ELフィルム先端指標 Film leader index mark	1		13	○		5
1K116-705	444	レリーズ釦ゴム Shutter release button rubber	1	1B990-408 1B990-261 (FAA23151)	15	○△		5
1K116-706	445	S-Cダイヤルリング S-C dial O-ring	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K116-707	733	補正ダイアル飾り蓋 Compensation dial cover	1		15	○		5
1K116-708	744	モードノブシールスポンジ Mode knob sponge	1		15	○		5
1K116-758	650	フィルム検出SW絶縁板A Tape 4×4	1		1	×	TA-0001	1
1K116-760	672	巻上側端部圧接ゴム Press-Contact rubber	1		12	○		5
1K116-761	675	巻上側圧接ゴム Press-Contact rubber	1		6	○		5
1K116-762	693	P Tr マイカ板 P Tr plate	2		5	○		5
1K116-763	695	P Tr 取付板放熱シート Radiator sheet	1	1B999-259	11	○△		5
1K116-767	725	イルミノブシールワッシャB Illuminator knob seal washer B	1		15	○		10
1K116-768	943	Rモーター防振モルト Vibration-proof sponge	1		4	○		5
1K116-769	944	底カバー防水モルト Water-proof sponge	1		13	○		5
1K116-770	946	ISO環ゴム ISO ring rubber	1		14	○		5

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty por order
1K116-771	947	ISO環シール ISO ring seal	1		14	○		5
1K116-773	955	シンクロ接点モルト Sync contact sponger	1		13	○		5
1K116-777	778	巻上側防水ルミラー Water-proof plastic sheet	1		13	○		5
1K116-779	151	ファインダーレールスポンジ A Finder rail sponge A	1		7	○		5
1K116-780	152	ファインダーレールスポンジ B Finder rail sponge B	1		7	○		5
1K116-781	153	ファインダーレールスポンジ C Finder rail sponge C	2		7	○		5
1K116-787	348	AF切換釦ゴム Focus mode selector rubber	1	18999-259	8	○△		5
1K116-788	364	着脱釦ゴム Lens release button rubber	1	18999-259	8	○△		5
1K116-791	443	S-Cロック解除ボタンゴム S-C lock cancellation button rubber	1	18990-408 18990-261 (FAA23151)	15	○△		5
1K116-792	450	スプール室上ゴム Spool chamber rubber	1		1	○		5
1K116-796	247	ミラーボックス巻上側 遮光紙 Light baffle sheet	1	18990-449 18999-257 18999-259	10	○△		5
1K116-799	299	LED圧接ゴム LED press-contact rubber	1	18990-354	7	○△		5
1K116-815	62	前板ゴム (巻上側) Front plate rubber (adv side)	1		13	○		5
1K116-816	63	前板ゴム (巻戻側) Front plate rubber (rewind side)	1		13	○		5
1K 116-818	65	底カバー防水スポンジ Water-proof sponge	1		1	○		5
1K116-819	70	バッテリパック底部ゴム Battery pack rubber	1		16	○		5
1K116-833	69	データパック穴漏光防止ルミラー Light-tight plastic sheet	1		2	○		5
1K116-834	372	ファインダー接点モルト Finder contact sponge	1		2	○		5
1K116-835	373	ファインダー接点ゴム Finder contact rubber	1		2	○		5
1K116-814		TAPE			16			

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K116-836	804	フィルム窓モルト Film cartridge confirmation window sponge	1	18999-216	17	○△		5
1K116-837	821	背部漏光防止モルト Light-baffle sponge	2	18999-216	17	○△		5
1K116-838	825	裏蓋テレンプ Camera back teremp	1	18999-216	17	○△		5
1K116-839	830	裏蓋上満用Kフォーム A Light-tight A, camera back	1		1	○		5
1K116-840	831	裏蓋上満用Kフォーム B Light-tight B, camera back	1		1	○		5
1K116-841	832	裏蓋上満用Kフォーム C Light-tight C, camera back	1		1	○		5
1K116-842	833	裏蓋下満用Kフォーム Light-tight, camera back	1		1	○		5
1K116-843	897	DX-DB-FD用両面テープ11.5×22.5 Adhesive double coated tape	1	18880-377	2	×	TA-0010	1
1K116-844	898	DX接点用両面テープ27×4 Adhesive double coated tape	1	18990-377	2	×	TA-0010	1
1K116-847	938	表面ゴム用両面テープ A Double-sided adhesive tape A	1		13	○		5
1K116-848	939	表面ゴム用両面テープ B Double-sided adhesive tape B	1		13	○		5
1K116-849	942	ケーブルレリーズ部防水スポンジ Water-proof sponge	1		16	○		5
1K116-851	967	両面テープA 10×5 Adhesive double coated tape	3	18990-395	5	×	TA-0010	1
1K116-853	969	両面テープC 10×10 Adhesive double coated tape	2	18990-359	5	×	TA-0010	1
1K116-914	970	アセテートテープ Tape	1		4, 6	×	TA-0006	
1K116-918	962	表示部スポンジB Display sponge B	1	18990-354	7	○△		5
1K116-920	940	表面ゴム用両面テープC Double-sided adhesive tape C	1		13	○		5
*1K120-004	1117	Screw	4	18990-259	11	○△		10
*1K120-056-1	1105	Screw	2	18990-404	1.14	○△		10

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
*1K120-075	1106	Screw	11	1B999-219 1B999-259	3, 5 6, 9	○△		10
*1K120-106	1136	Screw	1		16	○		5
*1K120-111	1107	Screw	1		3	○		10
*1K120-138	1109	Screw	1		4	○		5
*1K120-166	1110	Screw	2		6	○		10
*1K120-208	1112	Screw	2	1B990-444	3	○△		10
*1K120-223	435	ELフィルムガイドピン Film guide pin	1		13	○		10
1K120-281	734	補正ダイアル止ビス Compensation dial screw	1		15	○		10
1K120-284	351	AF切換ビス Focus mode selector screw	1	1B999-259	8	○△		10
1K120-285	237	ブレーキ連動レバー止ビス Screw	1	1B990-448 1B999-257 1B999-259	10	○△		10
1K120-293	1111	Screw	1	1B990-444	3,6	○△		10
1K120-294	1113	Screw	3		5	○		10
1K120-295	1130	Screw	2		6	○		10
1K120-297	1134	Screw ※ 白色ビスがオプションOK B2-20050ニA 使用可能	1		14	○		10
~~1K120-289~~ 1K120-298	1135	シャッタ止ビス Screw	1		1 2	○	NO.8902G	10
*1K123-039	383	バヨネット止めビス Bayonet screw	5	1B999-259	9	○△		10
~~1K123-149~~ 1K123-148	888	裏蓋ガイドピン Camera back guide pin	2		1	○ $0.92	NO.8909	10
1K123-155	1140	Screw	1	1B999-259	11	○△		10
*1K126-011-1	818	裏蓋はずしビス Screw	1	1B999-216	17	○△		10

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K126-081	196	手動ミラーアップロック軸 Manual mirror-up lock shaft	1	1B999-259	8	○△		5
1K130-389	583	カウンターギアー軸ねじ Counter gear shaft screw	1	1B990-444	3	○△		5
1K130-398	66	シャッター止めねじ (上) Screw	1		2	○		10
1K130-399	68	シャッター止めねじ (下) Screw	1		2	○		10
1K130-409	1137	Screw	1		5	○		10
1K130-410	1138	Screw	1	1B999-259	8	○△		10
1K133-047	862	R2戻しレバー軸 R2 reset lever shaft	1		1	○		5
1K136-070	614	多重リレーレバー軸 Double exposure lever shaft	1		3	○		5
1K146-118	685	巻上側支柱 Post (adv side)	3		5 6 16	○		5
1K146-119	686	巻戻側支柱 Post (rewing side)	2		6	○		5
1K146-121	774	T基板柱 Post (shutter bash)	1		4	○		5
1K146-123	30	フィルムローラー軸受 Film roller bearing	2		1	○		5
1K146-124	38	DB接点 (GND) DB contact (GND)	1		1 2	○		5
~~1K146-088~~ 1K150-080	909	ナット Nut	1		14	○	¥60- NO. 9838	5
*1K165-105	1114	ギヤ止めワッシャー Gear retaining washer	1	1B999-259	9	○△		5
1K165-134	718	イルミノブシールスポンジ A Illuminator knob seal sponge A	1		15	○		5
1K165-135	743	モードノブシールワッシャ Mode Knob washer	1		15	○		5
1K165-137	724	イルミノブシールスポンジ B Illuminator knob seal sponge B	1		15	○		5
1K165-138	347	AF切換釦シート Focus mode selector sheet	1	1B999-259	8	○△		5
1K165-144	392	ゴムワッシャー Rubber washer	1	1b999-259	8	○△		5

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K201-084	866	R2ノブ R2 knob	1		1	○		5
1K201-085	171	ミラーアップノブ Mirror-up knob	1	1B999-259	8	○△		5
1K201-086	176	ダブルロックノブ Double lock knob	1	1B999-259	8	○△		5
1K206-063 (DIS) 1K206-063-1	739	モードセレクタノブ Mode slector knob	1		15	○ ¥60	NO.8902G	5
1K206-065	720	イルミノブ Illuminator knob	1		15	○		5
1K206-066	775	多重撮作レバー Multi exposure lever	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K206-068	784	R1 操作レバー R1 lever	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K206-070	960	FD着脱ノブ FD release knob	1	1B990-404	14	○△		5
1K206-071	350	AF切換釦 Focus mode selector button	1	1B999-259	8	○△		5
1K208-115	751	レリーズ釦 Release button	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K208-119	749	SCロック解除釦 S-C lock cancellation button	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K208-120	786	R1ロック解除釦 R1 lock cancellation button	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K208-123 (O) 1K208-123-1	175	プレビュー釦 Depth-of-field preview button	1	1B999-259	8	○△ $2.15	NO. 8909	5
1K208-124	178	AFロック釦 AF lock button	1	1B999-259	8	○△		5
1K208-125	181	AEロック釦 AE lock button	1	1B999-259	8	○△		5
1K208-126	365	着脱釦 Lens release button	1	1B999-259	8	○△		5
*1K220-031	819	裏蓋ばね Compression spring	1	1B999-216	17	○△		10
*1K220-089	385	EE識別ばね EE distinction spring	1	1B999-259	9	○△		5
1K220-264	735	補正ロック解除ノブばね Compensation lock cancellation knob spring	1		15	○		5
1K220-279	712	Tダイアルロック解除釦ばね Shutter dial lock release button spring	1		15	○		5

部品表 Parts List

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K220-281	750	レリーズ釦ばね Release buttton spring	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K220-282	787	R1ロック解除釦ばね R1 lock release button spring	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K220-284	883	裏蓋カギばね Comera back key spring	1		1	○		5
1K220-286	961	FD着脱ばねA FD release spring A	1		7	○		5
1K220-287	962	FD着脱ばねB FD release spring B	1	1B990-404	14	○△		5
1K220-288	194	AFロック釦ばね AF lock button spring	2	1B999-259	8	○△		5
1K220-289	354	AF切換クリックばね Focus mode selector click plate	1	1B990-259	8	○△		5
1K220-290	370	着脱釦ばね Lens lelease button spring	ﾚ2	1B999-259	8	○△	no. 8909	5
1K220-291	35	DXばね DX spring	11		2	○		10
1K220-292	40	パトローネ受けばね Film cartridge bearing spring	1		4	○		5
1K220-294	198	ダブルロッククリックバネ Spring	1	1B999-259	8	○△		5
1K220-295	303	AFセンサー調整ばね AF sensor adjustment spring	3		12	○		5
1K225-183	541	R1スライダー復元ばね R1 slider reset spring	1	1B990-444	3	○△		5
1K225-184	922	解除レバーばね Release lever spring	1		14	○		5
1K225-186	145	ミラーアップばね Mirror-up spring	1	1B990-449 1B999-257 1B999-259	10	○△		5
1K225-187	146	3.1レバーばね 3.1 lever spring	1	1B990-449 1B999-257 1B999-259	10	○△		5
1K225-188	147	絞り駆動ばね Aper ture actuating spring	1	1B990-449 1B999-257 1B999-259	10	○△		5
1K225-189	148	第1戻しばね 1st reset spring	1	1B990-449 1B999-257 1B999-259	10	○△		5

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K225-191	361	ツーソーばね Seesaw lever spring	1	18999-259	11	○△		5
1K230-290	539	多重作動レバーばね Multi exposure lever spring	1	18999-219	3	○△		5
1K230-293	580	ゼネバ掛外しレバーばね Spring	1	18990-444	3	○△		5
1K230-294	586	カウンタ戻しばね Couter reset spring	1	18990-444	3	○△		5
1K230-295	595	Rセットレバーばね Rewind set lever spring	1	18990-444	3	○△		5
1K230-296	616	レリーズ貫通軸ばね Spring (Release shaft)	1		4	○		5
1K230-302	663	多重セットレバーばね Multi exposure set lever spring	1	18999-444	3	○△		5
1K230-303	777	多重レバーばね Multi exposure lever spring	1	18990-408 18999-261 (FAA23151)	15	○△		5
1K230-304	788	R1レバーばね R1 lever spring	1	18990-408 18999-261 (FAA23151)	15	○△		5
1K230-306	863	R2戻しレバーばね R2 reset lever spring	1		1	○		5
1K230-307	868	トグルばね Spring	1		1	○		5
1K230-308	106	ミラーアップレバー戻しばね Mirror-up lever spring	1	18990-449 18999-257 18999-259	10	○△		5
1K230-310	143	チャージレバーばね Charging lever spring	1	18990-449 18999-257 18999-259	10	○△		5
1K230-311	144	スタートレバーばね Start lever spring	1	18990-449 18999-257 18999-259	10	○△		5
1K230-312	149	第2戻しばね 2nd reset spring	1	18990-449 18999-257 18999-259	10	○△		5
1K230-314	191	ミラーアップオーバーチャージばね Mirror-up overcharge spring	1	18999-259	11	○△		5
1K230-319	260	ミラーダウンばね Mirror-down spring	1	18990-449 18999-257 18999-259	10	○△		5
1K230-320	284	f mm信号付勢ばね fmm signal spring	1	18990-449 18999-257 18999-259	10	○△		5
1K230-321	254	サブミラーストッパー付勢バネ Sub-mirror stopper spring	1	18990-449 18999-257 18999-259	10	○△		5

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K233-069	510	スプールばね Spool spring	1		4	○		5
1K233-070	665	多重リレーレバーワイヤ Multi exposure lever wire	1		3	○		5
1K233-071	789	R1レバー止め輪 R1 lever ring	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K233-072	224	主ミラー押えばね (巻上側) Main mirror spring (adv side)	1	1B990-451 1B999-257 1B999-259	10	○△		5
1K233-073	225	主ミラー押えばね (巻戻側) Main mirror spring (rewind side)	1	1B990-451 1B999-257 1B999-259	10	○△		5
1K233-074	226	サブミラートクルばね Sup-mirror spring	1	1B990-451 1B999-257 1B999-259	10	○△		5
1K233-075	246	スクリーン押さえばね (前) Screen retainer spring (front)	1	1B999-259	8	○△		5
*1K240-468-3 (1K240-468-2)	382	バヨネットばね Bayonet spring	1	1B999-259	9	○△		5
1K240-667	928	シンクロ接点ばね Sync contact spring	1		4	○		5
1K240-673	336	フォトカプラー受け Photo coupler base	1	1B999-259	9	○△		5
1K240-681	433	ボディ側パトローネ押えばね Film cartridge retainer spring	1		1	○		5
1K240-682	242	スクリーン押えばね (後) Screen retainer spring (rear)	1		13	○		5
1K240-683	243	スクリーン押えばねカバー Screen retainer spring cover	1	1B999-259	8	○△		5
1K260-420	474	ギアC11 Gear C11	1		3	○		5
1K260-427	502	ギアS9 Gear S9	1		3	○		5
1K260-431	546	長尺連動ギア Data back gear	1		2	○		5
1K260-436	596	パルスギアA Pulse gear A	1		3	○		5
1K260-437	597	パルスギアB Pulse gear B	1		3	○		5

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
~~1K260-450~~ 1K260-451	331	エンコーダ円板 Encoder disk	1	1B999-259	9	○△		5
1K275-066	544	スプロケット Sprocket	1		2	○		5
1K275-067	561	スプール Spool	1		4	○		5
1K275-068	582	カウンタギア Counter gear	1	1B990-444	3	○△		5
1K277-093	493	ギアS2 Gear S2	1		3	○		5
1K277-096	856	クラッチギア Clutch gear	1		5	○		5
1K277-097	321	第3ギア 3nd gear	1	1B999-259	9	○△		5
1K277-098	322	第4ギア 4th gear	1	1B999-259	9	○△		5
1K277-099	323	第5ギア 5th gear	1	1B999-259	9	○△		5
1K314-361	615	レリーズ貫通軸下レバー Lower release shaft lever	1		4	○		5
1K314-375	864	R2レバー R2 lever	1		1	○		5
1K314-377	959	FD着脱レバー FD release lever	1	1B990-404	14	○△		5
1K314-391	360	シーソーレバー Seesaw lever	1	1B999-259	11	○△		5
1K314-393	232	主ミラーブレーキ連動レバー Main mirror brake lever	1	1B990-448 1B999-257 1B999-259	10	○△		5
1K360-032	753A	レリーズストローク調整軸 Release stroke adjustment shaft ℓ=4.95	0		6	○		5
1K360-033	753B	〃 ℓ=5.10	0		6	○		5
1K360-034	753C	〃 ℓ=5.25	0		6	○		5
1K360-035	753D	〃 ℓ=5.40	0		6	○		5
1K360-047	753E	〃 ℓ=5.50	0		6	○		5
1K360-043	921	解除レバー軸 Release lever shaft	1		14	○		5

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K371-322	612	裏蓋開閉連動ピンA Camerea back coupling pin A	1		4	○		5
1K371-352	882	裏ギタカギ軸 Camera back key shaft	2		1	○		5
1K371-353	886	裏ブタSWピン Camera back SW pin	1		1	○		5
1K371-392	384	EE識別ピン EE distinction pin	1	1B99-259	9	○△		5
1K371-424	34	DX接点 DX contact	11		2	○		10
1K371-429	28	フィルムローラー Film roller	1		13	○		5
1K371-430	29	フィルムローラー軸 Film roller shaft	1		13	○		5
1K371-431	31	蝶番軸 Hinge shaft	1		1	○		5
1K371-434	815	上蝶番軸 Upper hinge shaft	1	1B999-216	17	○△		5
1K400-293	25	三脚ネジ Tripod screw	1		16	○		5
1K404-095	381	バヨネット Bayonet	1	1B999-259	9	○△		5
1K467-128	945	ケーブルレリーズコネクタキャップ Cable release connector cap	1		16	○		5
1K470-076	584	カウンタ目盛板 Counter index plate	1	1B990-444	3	○△		5
1K475-422	714	Tダイアル Shutter dial	1		15	○		5
1K480-027	585	カウンタ目盛板マスク Counter index plate mask	1	1B990-444	3	○△		5
1K520-950	172	ミラーアップノブ押え Mirror-up Knob retainer	1	1B999-259	8	○△		5
1K600-810	717	イルミノブ止め輪 Illuminator knob ring	1		15	○		5
1K371-395	399	f-fo 回転軸 Shaft, f-fo pulley	1	1B990-448 1B999-257	10	○△		5

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	発注単位 Q'ty per order
1K600-812	737	補正ロック盤 Compensation lock disk	1		15	○		5
1K600-841	677	巻上側圧接板 Press-contact plate	1		6	○		5
1K600-849	930	シンクロ接点絶縁板 Sync. contact insulation plate	1		4	○		5
1K600-861(015) 1K600-861-1	353	AF切換クリック板 Focus mode selector click plate	1	1B999-259 89F-1007	8	○△	NO.8908	5
1K600-866	244	スクリーン押え穴かくし板 Screen retainer plate	1	1B999-259	8	○△		5
1K600-867	245	スクリーン押え (前) Screen retainer	1	1B999-259	8	○△		5
1K600-879 (015) 1K600-879-1	42	電池BOXカギ基板 Battery chamber key plate	1		16	○ ※20-	NO.8902G	5
1K600-880	53A	視野枠 t=1.1 Viewfinder frame	0	1B999-259	11	○△		5
1K600-881	53B	〃 t=1.3	0	1B999-259	11	○△		5
1K600-882	53C	〃 t=1.2	0	1B999-259	11	○△		5
1K600-883	54A	視野枠スペンサー t=0.05 Viewfinder frame spacer	0	1B999-259	11	○△		5
1K600-884	54B	〃 t=0.06	0	1B999-259	11	○△		5
1K600-885	54C	〃 t=0.07	0	1B999-259	11	○△		5
1K600-886	54D	〃 t=0.08	0	1B999-259	11	○△		5
1K600-887	54E	〃 t=0.09	0	1B999-259	11	○△		5
1K600-888	54F	〃 t=0.1	0	1B999-259	11	○△		5
1K600-889	61	イルミノブ指標 Illuminator index	1		15	○		5
1K611-173	736	補正ロックレバー Compensation lock lever	1		15	○		5

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K611-241	684	フィルターリード線押え Filter lead wire retainer	1	1B999-257 1B999-259	10	○△		5
1K611-243	694	メインＦＰＣガイド板A Main FPC guide plate A	1		4	○		5
1K611-250	881	裏ブタカギ Camera back key	1		1	○		5
1K611-253	929	シンクロ接点ラグ板 Sync contact lug plate	1		4	○		5
1K611-254	957	ＦＤ着脱基板 FD release base plate	1		7	○		5
1K611-258	977	フィルター下カバー Lower filter cover	1	1B990-448 1B999-257 1B999-259	10	○△		5
1K611-260	990	スポット測光コード掛け Stopper, spot SPD lead wires	1	1B999-257 1B999-259	10	○△		5
1K611-289	207	遮光板 Light baffle plate	1	1B999-259	11	○△		5
1K611-319	47	巻上側圧接部ふた Press-contact cover	1		13	○		5
1K611-320	48	巻戻側ボロカクシ板 Cover plate	1		13	○		5
1K611-324	60	バッテリーパック当て板 Bttery pack plate	1		13	○		5
1K611-331	673	巻上側圧接板 Press-contact plate	1		6	○		5
1K625-076	32	底カバー三脚固定板 Tripod plate	1		16	○		5
1K630-609	678	巻上げ側ピン Pin	2		6	○		5
1K630-613	745	ＳＣダイアル S-C dial	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K630-621	164	手動ミラーアップ連動軸カラー Manual mirror-up coupling shaft collar	1	1B999-259	11	○△		5
1K630-622	180	ダブルロックノブ止め軸 Double lock knob stopper shaft	1	1B999-259	8	○△		5

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K630-623	333	スリップギアブッシュA Slip gear bush A	1	1B999-259	9	○△		5
1K630-626	261	ミラーダウンバネカラー Mirror-down spring collar	1	1B990-448 1B999-257 1B999-259	10	○△		5
1K640-871	560	スプロケット軸下ベアリング Lower sprocket bearing	1		1 2	○		5
1K640-893	907	ＩＳＯ指標環 ISO index ring	1		14	○		5
1K680-955	798	補正ノブ Compensation knob	1		15	○		5
1K681-015	660	フィルム検出ＳＷピン Film detection SW pin	1		2	○		5
1K681-021	884	裏蓋カギカバー Camera back key cover	1		1	○		5
1K681-022	889	ＤＸ　ＬＥＤ　窓 DX LED window	1	1B990-404	14	○△		5
1K681-024	902	ギア台座 Gear base	1		4	○		5
1K681-028	927	シンクロ接点モールド Sync contact mold	1		4	○		5
1K681-042	293	表示部底板 Display bottom plate	1	1B990-354	7	○△		5
1K681-043	295	ＬＣＤライトガイド LCD light guide	1	1B990-354	7	○△		5
1K681-061	22	エプロン Apron	1	1B990-259	9	○△		5
1K681-065	33	データ接点カバー板 Data contact cover plate	1		2	○		5
1K681-066	36	ＤＸモールド DX mold	1		2	○		5
1K681-067	39	パトローネ受け Film cartridge bearing	1		4	○		5
1K681-068	46	バッテリーパックレール Battery pack rail	1	1B999-225 1B999-259	8	○△		5
1K681-069	51	ファインダーレール（巻上側） Viewfinder rail (adv side)	1		7	○		5

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1K681-070	52	ファインダーレール（巻戻側） Viewfinder rail (rewind side)	1		7	○		5
1K681-071	55	フィルムカウンタ窓 Frame counter window	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K681-072	56	セルフ窓 Self-timer window	1	1B990-408 1B999-261 (FAA23151)	15	○△		5
1K681-073	59	バッテリーパックスライド板 Battery pack sliding plate	1		13	○		5
1K681-074	67	バッテリーパック前側シールド Battery pack shield	1	1B999-225 1B999-259	8	○△		5
1K681-084	427	ELガイドモールド Flim guide mold	1		1	○		5
1K681-086	826	裏蓋張革 Camera back leatherette	1	1B999-216	17	○△		5

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1S113-026	5080	LED	1		16	○		5
1S162-005	5048	EEP ROM	1	1B990-397	6	○△		5
1S190-005	5043	CPU	1	1B990-397	6	○△		5
1S205-065	5044	CPU	1	1B990-354	7	○△		5
*1S237-053	5040	B-DMOS IC	1	1B990-397	6	○△		5
1S237-061	5041	IIL IC	1	1B990-397	6	○△		5
1S258-009	5074	フォトインタラプタ Photo interrupter	1	1B990-449 1B999-257 1B999-259	10	○△		5
1S260-043	5072	LED アレイ LED array	1	1B990-354	7	○△		5
1S260-045	5078	LED	1	1B990-354	7	○△		5
1S268-015	5090	液晶パネル LCD panel	1	1B990-354	7	○△		5
1S422-037	195	AF・AEロックSW AF・AE lock SW	2	1B999-258 1B999-259	11	○△		5
1S705-142	5011	FPC	1		12	○		1
1S726-037	696	スポットTTLリード線テープ 6×9 Tape	2		12	×	TA-0005	
1S726-038	697	三層座絶縁テープ 12×16 Tape	1		16	×	TA-0005	
1S726-039	421	絶縁テープ 8×38 (FD-DX-DB-FPC) Tape	1		1	×	TA-0005	
1S726-040	423	絶縁テープ 5×17 (メインFPC DC-DC) Tape	1		6	×	TA-0005	
1S726-047	963	アセテートテープA 6×4 Tape	4		5	×	TA-0006	
1S726-048	964	アセテートテープB 6×13 Tape	5		5 4 12	×	TA-0006	
1S726-052	154	前板下部絶縁テープ 4.5×5.0 Tape	1	1B999-259	11	×	TA-0001	
1S340-098		CONDENSER (0.47μF) 25V				¥10-	NO. 8902G	

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1S726-049	965	アセテートテープC 6×8 Tape	1		2 12	×	TA-0006	
1S726-050	966	アセテートテープD 10×20 Tape	3	18999-259	9 12	×	TA-0006	
1S758-026	5092	エラスティック コネクタ Elastic connector	2	18990-354	7	○△		5
1S758-027	5093	エラスティック コネクタ Elastic connector	1		6	○		5
1S999-027		TEMPORARY PLATE FOR RELEASE				¥60	NO. 8902 G	
1S380-007		OSCILLATOR (8MHZ)				¥120	NO. 8902 G	
W-0056WH		リードワイヤー Lead wire						
W-0056BE		〃						
W-0056GY		〃						
W-0056RE		〃						
W-0056BK		〃						
W-0056BN		〃						
W-0056OR		〃						
W-0056YE		〃						
W-0056GN		〃						
W-0056PU		〃						
W-0056BN		〃						

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
W-0056PK		〃						
W-0080OR		〃						
W-0080BK		〃						
W-0080GY		〃						
W-0080GN		〃						
W-0080BK		〃						
W-0080WH		〃						

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
A1-14014BR	1004	Screw	2		13	○		50
A1-14015FA	1001	Screw	4		4	○		50
A1-14015FD	1005	Screw	2	1B999-259	9	○△		50
A1-14016BS	1003	Screw	1	1B990-354	7	○△		50
A1-14020FA	1012	Screw	7	1B990-449 1B999-257 1B999-259	10	○△		50
A1-14025FA	1007	Screw	2		6	○		50
A1-17015FA	1129	Screw	1	1B999-259	9	○△		50
A1-17020BS	1127	Screw	6		2 13	○		50
A1-17020FA	1017	Screw	4		2 6	○		50
A1-17022FA	1126	Screw	5	1B999-257 1B999-259	10	○△		50
A1-17022FD	1016	Screw	3	1B999-259 1B990-448 1B999-257	10 11	○△		50
A1-17022FS	1018	Screw	2	1B999-259	8	○△		50
A1-17025FA	1019	Screw	13	1B999-219 1B999-259	1.3. 4.5. 8.11	○△		50
A1-17025FD	1022	Screw	2	1B990-448 1B999-257 1B999-259	2	○△		50
A1-17028FB	1021	Screw	1		6	○		50
A1-17030BS	1025	Screw	3		7	○		50
A1-17030FA	1023	Screw	8	1B999-257 1B999-259	4.10 12. 15	○△		50
A1-17030FD	1015	Screw	3	1B990-448 1B999-257 1B999-259	1 10	○△		50
A1-17018FA	1014	Screw	2		7	○		50

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
A1-17035FS	1045	Screw	1		14	○		50
A1-17040FA	1027	Screw	1	18999-259	8	○△		50
A1-17060FY	1029	Screw	3	18990-449 18999-257 18999-259	10	○△		50
A1-20022FA	1048	Screw	2	18999-259	9	○△		50
A1-20025FD	1049	Screw	6		4	○		50
A1-20028FA	1050	Screw	6	18999-257 18999-259	5,10 11, 12	○△		50
A1-20030FD	1051	Screw	3	18990-448 18999-257 18999-259	16	○△		50
A1-20035FA	1052	Screw	5	18999-259	4 11	○△		50
A1-20040FB	1059	Screw	6		12	○		50
A1-20045FA	1055	Screw	4		16	○		50
A1-20055FA	1058	Screw	2		12	○		50
A1-20060FC	1046	Screw	4		7	○		50
~~A1-20110FA~~ A1-20110FC	1056	Screw	2		16	○ ¥10-	NO. 8846	50
A2-14030FA	1009	Screw	3		15	○		50
A2-17025FA	1030	Screw	2		7	○		50
A2-17030BS	1031	Screw	4		2	○		50

部品表 Parts List

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
A2-17030FA	1032	Screw	5	1B999-257 1B999-259	10 13	○△		50
A2-20028FY	1053	Screw	1	1B999-259	8	○△		50
A2-20030FA	1054	Screw	1		5	○		50
B1-14016FA	1010	Screw	9	1B990-448.444 1B999-257.259	3 9 10	○△		50
B1-14025FA	1011	Screw	2	1B990-408 1B999-261 (FAA23151)	15	○△		50
B1-17018FA	1035	Screw	2	1B999-259	11 12	○△		50
B1-17020BX	1037	Screw	2	1B990-448 1B999-257 1B999-259	10	○△		50
B1-17025FA	1038	Screw	5	1B999-259	6 12	○△		50
B1-17030FD	1039	Screw	3	1B999-259	11	○△		50
B1-17035BS	1036	Screw	3 4		14	○		50
~~B1-17035BS~~ (DIS)	1042	Screw	~~3~~		~~15~~	○	NO. 8902G	50
B1-17035FA	1040	Screw	7		1 2 12	○		50
B1-17035FD	1041	Screw	2	1B999-259	9	○△		50
B1-17045FA	1034	Screw	2	1B999-259	8 11	○△		50
B1-17060FA	1026	Screw	3	1B999-259	6 8	○△		50

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
B2-17022FA	1044	Screw	2		5	○		50
B2-20035FY	1057	Screw	2	1B999-259	8	○△		50
G1-14020FA	1061	Screw	3		14	○		50
G1-14025FA	1062	Screw	7		2 15	○		50
G1-14040FS	1063	Screw	1	1B990-354	7	○△		50
G1-17025FA	1073	Screw	4		12	○		50
G1-17025FD	1071	Screw	2		1	○		50
G1-17030FA	1067	Screw	7	1B990-404	7 14 16	○△		50
G1-17080FD		SCREW					no. 8909	
G2-14025FA	1065	Screw	3	1B990-408 1B999-261 (FAA2315I)	15	○△		50
G2-20035FC	1128	Screw	3		16	○		50

部品表 Parts List

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	部組品番号 Assembly	参照図番 Fig.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
H1-14025FA	1064	Screw	2	1B990-354	7	○△		50
K2-14020FA (OLD)	1072	Screw (M1.4)	4	1B999-259	8 15	○△	NO. 8909	50
K2-17020FD	1074	Screw	2		2	○		50
K2-17025FD	1076	Screw (M1.7)	4		2	○	NO. 8909	50
S1-00800SX	1085	E ring	13	1B990-449 1B999-257 -448 -259	1.9 10. 13 13	○△		50
S1-01200SX	1087	E ring	26	1B999-219 1B999-257.259 1B990-408 1B999-261 (FAA23151) 1B990-449	1.2. 3.5. 8.10 11. 15	○△		50
S1-01500SX	1090	E ring	4		4	○		50
T1-01200FX	1119	ベアリング Bearing	4	1B999-259	8	○△		50
1G550-029	G2	サブミラー Sub-mirror	1	1B990-451 1B999-257 1B999-259	10	○△		5
1G571-004	G1	メインミラー Main mirror	1	1B990-451 1B999-257 1B999-259	10	○△		5
1G960-002	298	偏光板 Polarizing plate	1	1B990-354	7	○△		5

部組品表 Assembly List

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部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照図番 Fig.	備考 Remarks	要求単位 Q'ty per order
1B001-827 (DIS)	B2003	シャッター先幕組品 Opening shutter curtain	1	O→× 1B060-403	2	NO. 8902	50
1B001-828 (DIS)	B2009	シャッター後幕組品 Closing shutter curtain	1	O→× 1B060-403	2	NO. 8902	50
~~1B001-841~~ 1B001-846	B949	接点ブロック Contact block	1		16	NO, 8838	5
1B060-403	PT16135	シャッター Shutter unit	1		2		1
1B060-406	B313	AFモーター AF motor	1		9		5
1B060-407	B835	Rモーター Rewind motor	1		4		5
1B314-171	B910	ノブ解除部組 Knob release lever unit	1		14		5
*1B400-001-2 (1B400-001-1)	50	X ターミナル X terminal	1		8		5
1B610-089	B417	ELガイド板 EL guide plate	1		2		5
1B680-060	B374	FD接点 FD contact	1		2		5
1B990-354	B25002	表示フレキ Display FPC	1		7		1
1B990-356 (OLD) 1B990-356-1	B25023	AF基板組 AF base plate	1	¥5490-	12	NO. 8902G	1
1B990-374	B861	R_2 戻し第一レバー R_2 rewind 1st lever	1		1		1
1B990-375	B416	ELローラー EL roller	1		1		1
1B990-377	B5001	DX-DBフレキ DX-DB.FPC	1		2		1
1B990-379 (OLD) 1B990-379-1	B5018	サイリスタトリガ基板 Thyrister trigger base plate	1	¥250-	2	NO.8902G	1
1B990-380	B656	フィルム検出スイッチ Film detection SW	1		2		1
1B990-385 (OLD) 1B990-385-1	B845	巻戻し軸軸 Rewind shaft	1	89F-2019 ¥7.38	4	NO. 8909	1
1B990-387	B860	フォークギヤ Fork gear	1		5		1

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部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照図番 Fig.	備考 Remarks	要求単位 Q'ty per order
1B990-389	B904	巻戻し中板 Rewind Plate	1		5		1
1B990-391	B5015	DC-DC基板 DC-DC base plate	1		5		1
1B990-392	B5050	パワーTr Power transistor	1		5		1
1B990-394(OLD) 1B990-394-1	B5007	パワーTrフレキ Power transistor FPC	1	¥1430-	5	NO. 8902G	1
1B990-395	B681	裏打板 Backing plate	1		4		1
1B990-396	B670	巻上側端部圧接板 Press-contact plate	1		12		1
1B990-397(OLD) 1B990-397-1	B35003	メイン フレキ Main FPC	1	OLD→NEW sometime must change 1B990-379 → 1B990-379-1 ¥3650-	6	NO. 8902G	1
1B990-404	B2024	巻戻側上カバー Top cover (rewind side)	1		14		1
1B990-405(DIS) 1B990-405-1	B914	巻戻ノブ組品 Rewind crank unit	1	¥930-	14	NO. 8902G	5
1B990-406(DIS) 1B990-406-1	B913	巻戻フォーク Rewind fork	1	¥250-	14	NO. 8902G	5
*1B990-408	B023	巻上側上カバー Top cover (dcv side)	1	USA⇒ 1B999-261	15	製品No入り	1
1B990-400	B732	補正ダイヤル Compensation dial	1		15		5
1B990-414	B935	ケーブルレリーズターミナル Cable release terminal	1		16		5
1B990-416	B064	底カバーゴム Bottom cover rubber	1		16		5
1B990-436	B452	スプールモーター Spool motor	1		3	NO. 8838	5
1B990-437	B461	ギア C2 Gear C2	1		3	〃	5
1B990-438	B471	ギア C9 Gear C9	1		3	〃	5
1B990-439	B466	ギア C6 Gear C6	1		3	〃	5
1B990-440	B469	ギア C7 Gear C7	1		3	〃	5

部 組 品 表　Assembly List　　FAA23051-R. 3248. A

部組品番号 Assembly No.	補助番号 Ckt. No.	名　称 Name	1台分個数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照図番 Fig.	備　考 Remarks	要求単位 Q'ty per order
1B990-441	B503	ギア　C10 Gear C10	1		3		4
1B990-442	B499	ギア　S7 Gear S7	1		3		4
1B990-444	B2563	上基板 Upper base plate	1		3		1
1B990-445	B613	多重リレーレバー Double exposure relaying lever	1		3		5
1B990-446	B5077	フォトインタラプタ Photo interrupter	1		3		5
1B990-448	B221	L字基板 Base plate L	1		10		1
1B990-449	B2071	ミラー駆動基板 Mirror actuating base plate	1		10		1
1B990-450	B2974	フィルター駆動基板 Filter actuating plate	1		10		1
1B990-451	B2208	ミラー組品 Mirror unit	1		10		1
~~1B999-204~~ 1B060-395	B453	レリーズMg Release Mg	1		4	¥620 NO.8938	5
1B999-205(DIS) 1B999-205-1	B710	Tダイアルロック解除釦 Shutter dial lock release button	1	31120-	15	NO.8902G	5
1B999-206	B8002	Tダイアル基板 Shutter dial base plate	1		5		1
1B999-207	B869	R_2 シーソー R_2 seesaw	1		2		5
1B999-208	B037	DX押え板 DX retainer plate	1		2		5
1B999-209	B8003	巻戻しモーターギア部 Rewind motor gear unit	1		4		1
1B999-210	B905	巻戻し軸受 Rewind bearing	1		5		1
1B999-211	B8005	表示部モールド Display mold	1		7		5
1B999-212	B8004	ISO環 ISO ring	1		14		5

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部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照図番 Fig.	備考 Remarks	要求単位 Q'ty per order
18999-213	B956	FD着脱爪 FD latch	1		7		5
18999-215	B8007	底カバー Bottom cover	1		16		1
18999-216	B8006	裏蓋部 Camera back unit	1		17		1
18999-217	B810	圧板 Pressure plate	1		17		5
~~18999-218~~ 18060-394	B451	モーター Motor	1		3	¥2200- NO8838	5
18999-219	B8008	下基板 Lower base plate	1		3		1
18999-220	B495	ギアーS3 Gear S3	1		3		5
18999-221	B606	チャージ完了SW Charging completion SW	1		3		5
18999-222	B602	スプロケット巻完SW Sprocket completion SW	1		3		5
18999-223	B591	カウンターSW Counter SW	1		3		5
18999-224	B043	耳環 Eyelet	2		8		5
18999-225	B046	バッテリーパックレール Battery pack rail	1		8		5
18999-226	B352	AF切換カム Focus mode selector cam	1		8		5
18999-227	B366	着脱ピン Lens release pin	1		8		5
18999-228	B5021	AF切換基板 Focus mode selector base plate	1		8		5
18999-229	B385	EE識別SW EE distinction SW	1		8		5
18999-230	B179	ダブルロックノブ固定板 Double lock knob plate	1		8		5

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部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照図番 Fig.	備考 Remarks	要求単位 Q'ty per order
1B999-231	B161	手動ミラーアップカム板 Manual mirror-up cam plate	1		8		5
1B999-232	B182	ダブルロックSW Double lock SW	1		8		5
1B999-233	B311	AF下基板 Lower AF base plate	1		9		5
1B999-234	B315	フリクションギア Friction gear	1		9		5
1B999-235	B312	AF上基板 Upper AF base plate	1		9		5
1B999-236	B5033	fo基板 fo base plate	1		9		5
1B999-237	B5075	foフォトインタラプタ fo photo interupter	1		9		5
1B999-238	B408	foレバー fo lever	1		9		5
1B999-239	B357	AF切換レバー基板 Focus mode selector lever base plate	1		11		5
1B999-240	B362	着脱釦SW Lens release button SW	1		8		5
1B999-241	B165	手動ミラーアップオーバーチャージレバー Manual mirror-up over-charge lever	1		11		5
1B999-242	B378	AF接点 AF contact	1		9		5
1B999-243	B2160	ミラー部操作基板 Mirror operating base plate	1		11		1
1B999-244	B391	絞り連動環 Aperture coupling ring	1		9		1
1B999-245	B400	f-foプーリー f-fo pulley	1		11		5
1B999-246	B688	パワーTr基板 Power Transistor plate	1		11		5
~~1B999-247~~ DIS	B9301	AFセンサーホルダー AF sensor holder	1	1B990-356	12	NO. 8902	1
1B999-248	B291	TTL SPDホルダー TTL SPD holder	1		10		5

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部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照図番 Fig.	備考 Remarks	要求単位 Q'ty per order
1B999-249	B205	後部遮光モルト Light-baffle sponge	1		12		5
~~1B999-250~~ DIS	B5023	AF基板 AF base plate	1	1B990-356	12	NO. 8902	1
1B999-251	B975	フィルター上カバー Upper filter cover	1		10		1
1B999-252	B976	フィルターホルダー Filter holder	1		10		1
1B999-253	B121	絞りMg Aperture Mg	1		10		5
1B999-254	B5034	f－fo基板 f-fo base plate	1		10		5
1B999-255	B5028	fmm基板 fmm base plate	1		10		5
1B999-257	B9071	ミラーボックス組品 Unit, mirror-box	1		10		1
1B999-258	B5008	ロックエンコーダーフレキ Lock encoder FPC	1		11		5
1B999-259	BB001	前ボデー Assembly, front plate	1		8 9 11		1
1B999-261 (FAA23151)	B023	巻上側上カバー (USA用) Top cover (ADV SIDE) For USA	1	製品No入り With S/N printed	15		1
1S999-018	B5071	スポットSPD Spot SPD	1		12		5
1B999-273		BOTTOM COVER SEAL PLATE		ADDED TO 1B990-416 BOTTOM RUBBER COVER		¥20-. NO. 8846	
1B999-330		ISO DIAL LOCK BUTTON		89F-1019		$0.12 NO. 8909	

[1] SPECIFICATIONS

1. Shutter

(1) Electronically controlled vertical-travel focal-plane shutter (A Nikon original).

(2) Two-magnet controlled shutter curtain movement (attraction-retained when power is applied).

(3) Four-blade opening shutter curtain and four-blade closing shutter curtain construction. Shutter curtain moves from up to down.

(4) Two blades of both opening and closing shutter curtains are made of layer-built carbon fiber plate, and the rest are made of aluminum material.

(5) Double light baffling system when not in exposed. Closing shutter curtain is returned by a shutter release Mg.

(6) Sync contact employs semiconductor trigger system.

(7) Shutter curtain moving time: 2.9msec. (24mm)

(8) Built-in balancer for absorbing the shock due to the movement of the opening shutter curtain.

(9) Shutter speed control range:
S, M mode: T, B, X, and 4 to 1/8000 sec. (in one step)
A, P mode: 30 to 1/8000 sec. (in 1/12 steps)

(10) "T" (time) is controlled manually. Others are all controlled electronically.

(11) Flash synchronization: 1/250 sec. (actually 1/242). Sync contact is available but no FPM contact.

(12) Closing shutter synchronization is possible when the SB-24 is mounted (excepting for T mode).

(13) Operation of T (time) exposure
When the shutter speed dial is set to T (time), the armature of the closing shutter curtain Mg is mechanically held. When shutter is released, the opening shutter curtain closes, and the power is off in 32 seconds (sync contact is also off). At this moment, LCD frame counter number advances +1. Reset the shutter speed dial and the closing shutter curtain closes (in not double light baffling).
When the shutter is depressed fully, the mirror moves down and film is advanced.
When shutter prerelease timer is not out (within 32 seconds after shutter is released), the mirror moves down and film is advanced immediately after resetting the shutter speed dial.

(14) When shutter speed dial is set to T, closing shutter curtain synchronization is automatically changed to opening shutter curtain synchronization.

2. Sequence and film advance control

2-1. System

(1) Three-motor driving system includes a shutter charge motor to control mirror and shutter units, a film take-up spool motor to advance film, and a film rewind motor to rewind film.

(2) Shutter charge motor is mounted in front of the film sprocket.
Shutter charge motor controls mirror driving, aperture, and shutter units.

(3) Film take-up spool motor is built in the spool.
(1) The film take-up spool motor advances film.
(2) Film take-up spool driving system. (Sprocket is used for counting film perforation, not for driving film.) Change sprocket driving system when 250 multi-control back (MF-24) is mounted.

(4) Film rewind motor is mounted under the film cartridge chamber.
(1) The film rewind motor rewinds film. This also functions to change over AF filters regardless of the sequence.

(2) Auto and manual film rewind operations are available due to its built-in clutch between the motor and the film rewind crank.

2-2. Film advance

(1) Following four film advance modes are available:
(1) Single frame shooting (S)
(2) Continuous high-speed shooting (CH)
(3) Continuous low-speed shooting (CL)
(4) Continuous silent shooting (CS)

(2) Rotate film advance mode selector dial to change the film advance mode.

(3) In the CH mode, or a continuous high-speed shooting mode, the film take-up spool motor and the shutter charge motor rotate simultaneously (parallel driving). This is a film advance speed priority mode rather than AF mode.

(4) In the CL mode, or a continuous low-speed shooting mode, the film take-up spool motor rotates after the rotation of shutter charge motor after shutter release operation in single servo autofocus mode or manual focus mode. When in continuous servo autofocus mode (C mode), parallel driving is performed.
In the latter mode, calculations for focus tracking when shooting a moving subject are performed.

(5) In the CS mode, or continuous silent shooting mode,stable and low-noise operation is performed through feedback control by monitoring a pulse signal generated along with the rotation of the shutter charge motor during film advance.
But film advance speed is just as the same as that of standard until the mirror moves down. In the CS mode, two motors rotate simultaneously (parallel driving).

(6) In the S mode, or a single-frame shooting mode, the next shooting is not possible unless you release the shutter once and reset the shutter release button. In the S mode, the film take-up spool motor starts rotation after rotating the shutter charge motor when shutter is released (series driving).

Summary:

	CH	CL	CS	S
AF-C	Parallel	Parallel	Parallel	Series
AF-S	Parallel	Series	Parallel	Series
MF	Parallel	Series	Parallel	Series

2-3. Film loading and blank shooting

(1) Normal film advance loading system. Film take-up spool is used for loading.

(2) When depressing the shutter release button fully after closing the camera back, blank shooting starts.

(3) Blank shooting is performed at a specified film advance speed regardless of the film advance mode.

(4) 2.5 to 3.5 frames are advanced during blank shooting.

(5) Shutter charge motor does not operate during blank shooting. As a result, neither shutter, mirror nor aperture operations are operated.

(6) Indicators in the viewfinder do not go out during blank shooting.

(7) Blank shooting is not performed when mounting the 250 multi-control back (MF-24).

(8) Both mechanical frame counter and LCD frame counter indicate "1" immediately after the completion of blank shooting.
Frame counter indicates "1" after performing six blank shootings when the 250 multi-control back is mounted.

(9) The film take-up spool rotates for a certain period of time (less than one frame) regardless of the film advance mode if the camera back is opened. You can check how the film leader is properly installed and advanced.

(10) Blank shooting is not performed if you close the camera back without loading film.

2-4. Detection of the end of roll.

When no film advance completion signal is output in one second after the completion of mechanical shutter charge, the film take-up spool motor automatically stops and external LED on the film advance side lights up (when film is loaded).

2-5. Film rewinding

(1) Auto film rewinding with a built-in film rewind motor.

(2) Setting the R1 knob (with lock) and moving down the R2 lever (with lock), the film rewind switch turns on and film rewind begins.

(3) Auto film rewinding is possible when film advance is not completed (or not at the end of roll).

(4) External LED indicator blinks (at 1Hz) while the film is rewinding automatically, and goes out when completed.

(5) Mechanical frame counter counts down, while the LCD frame counter remains as it is.

(6) Film rewinding time is within 12 seconds with new four AA penlight batteries at room temperature, and 8 seconds with six AA penlight batteries (36-exposure roll film).

(7) Film rewind motor stops automatically when film rewinding is completed.

(8) When film rewinding is completed:
Setting of either (1) film leader is rewound up in the film cartridge or (2) film leader is not rewound up in the film cartridge is optionally available at Nikon's customer service offices. Camera is set at item (1) when delivered from the factory. If you rewind film when the frame counter number is less than 1, be sure to stop the film rewinding operation leaving film leader.

(9) Reset the R1 lever by depressing the shutter release button half way at first time after film rewinding is completed. Reset the R2 lever by opening the camera back (pull up the film rewind knob),or by reset it by hand.

(10) Rest the frame counter (LCD and mechanical) by opening the camera back.But actually, both frame counters are reset by the film rewinding operation.

(11) The R2 lever can not be operated while mounting the 250 multi-control back (MF-24).

(12) If you set the R2 lever alone, a warning appears in the form of a blinking external LED at 8Hz.

2-6. Film advance speed

(1) When AF mode is in AF-C mode:

Film advance mode / Battery pack	CH	CL	Cs
Four AA battery pack	4.0	3.3	0.8
Six AA battery pack	5.7	3.4	1.0

(frame/sec.)

(2) When AF mode is in MF mode:

Film advance mode / Battery pack	CH	CL	CS
Four AA battery pack	4.0	2.2	0.8
Six AA battery pack	5.7	2.9	1.0

(frame/sec.)

(3) When AF mode is in AF-S mode, film advance speed is not determined because shutter is not released if the subject is not in focus.

(4) In either case, the above data is calculated at the shutter speed of 1/250 sec. or higher, at room temperature (20°C), and average value of frame numbers from 1 to 36 exposures, using new batteries.

3. Exposure metering

3-1. Full aperture metering

(1) AI lens (including modified AI lens) uses TTL full aperture exposure system.

(2) Exposure modes including AMP mode (multiple pattern metering), CW mode (centerweighted metering), SP mode (spot metering) are selectable depending on viewfinder mounted.

Exposure mode / Viewfinder	AMP	CW	SP
Multiphotomic	O	O	O
Photomic action	X	O	O
High magnification	X	X	O
West level	X	X	O

(3) Exposure mode may not be selectable even when exposure mode dial is set because communication signals differ depending on the types of lens mounted.

	Signal			Exposure mode		
Lens	fo	fmm	EE	AMP	CW	SP
CPU built-in lens	O	O	O	O	O	O
Ai lens *	O	O	O	O	O	O
Ai lens (f/2.8>)	O	X	X	O	O	O
Ai lens (f/2.8<)	O	X	X	Δ**	O	O
Ai modified lens(f/2.8>)	X	X	X	X	O	O
Ai modified lens (f/12.8<)	X	X	X	X	O	X

* Including E series lens
** Simplified AMP mode

3-2. Stop-down exposure metering

(1) Only stop-down exposure metering is available for non-Ai lens (auto aperture lens). TTL full aperture exposure metering is not possible.

(2) "A" mode auto exposure shooting is possible by releasing shutter while holding the preview button in A mode selected from the exposure mode selector.It is also possible by releasing shutter after resetting the preview button after measuring exposure metering by depressing the preview button and using AE lock mode.

(3) When the automatic diaphragm ring does not couple with the metering coupling lever while using a PC Nikkor or Bellows lens, release shutter to take picture in A mode auto exposure.

Note:
(1) When using Bellows attachment (PB-6) and facing front of the lens, the item (2) becomes available because the mode is equivalent to auto aperture.But use the preview lever (PB-6) instead of the preview button.
(2) When taking the picture by shifting a PC-Nikkor lens, determine the correct exposure in M mode before shifting the perspective.

4. Exposure control

4-1. Programmed auto exposure modes

(1) Shutter speed value ranges from 30 to 1/8000 sec. (displayed as 1/2 EV steps).

(2) Aperture value ranges from full aperture to minimum aperture (displayed as 1/2EV steps). In the following cases, 1/6EV steps may be displayed:

(1) When lenses having a built-in CPU with zooming operation are used (for full aperture F number only).
(2) When full aperture F number is displayed if F number shows other than the series number of $\sqrt{2}$ (e.x. 1, 1.4, 2, 2.8, ...).

4-2. Aperture-priority auto exposure mode

(1) Shutter speed value is adjusted nearly continuously (displayed in 1/2EV steps).

(2) Shutter speed value is within the range from 30 sec. to 1/8000 sec.

(3) Adjustable aperture value is within the range from full aperture to minimum aperture nearly continuously.

4-3. Shutter priority auto exposure mode

(1) Shutter speed is displayed in the viewfinder LCD (in 1EV step).

(2) Aperture is controlled nearly continuously and displayed in 1/2EV steps. In the following cases, 1/6EV steps may be displayed:

(1) When lenses having a built-in CPU with zooming operation are used (for full aperture F number only).
(2) When full aperture F number is displayed if F number shows other than the series of $\sqrt{2}$ (1, 1.4, 2, 2.8, ...).

(3) Aperture is controlled within the aperture range from full aperture to minimum aperture.

(4) Shutter speed is controlled within the range from 4 sec. to 1/8000 sec. in 1EV step, and Bulb, time, and X (same as displays).

4-4. Manual exposure mode

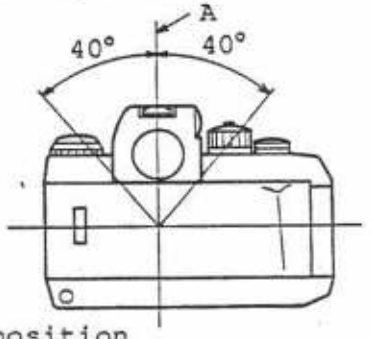
(1) Shutter speed is controlled within the range from 4 sec. to 1/8000 sec. in 1EV step and set to B (bulb), T (time), or X position.

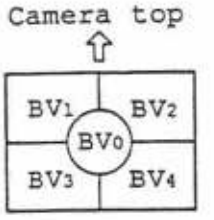
(2) Aperture is controlled within the range from lens full aperture to minimum aperture values in 1/6EV steps.

(3) In manual mode, deviation value from correct exposure value for film speed, brightness of subject, shifting value and shutter speed are graphically displayed in the viewfinder LCD in 1/3EV steps (from -2 to +2EV).

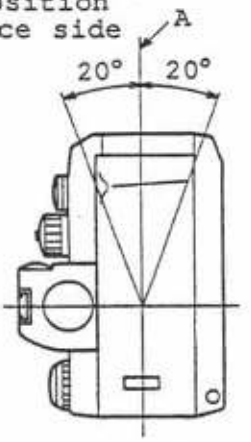
(4) In AMP mode, the exposure metering areas are shown as follows within the range of viewing angle depending on the location of the camera Line (indicated by a letter A) shows a vertical line. Optical axis of the lens is 90° ± 1° against the vertical line.

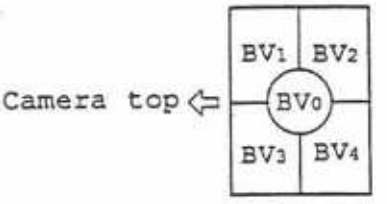
Normal position



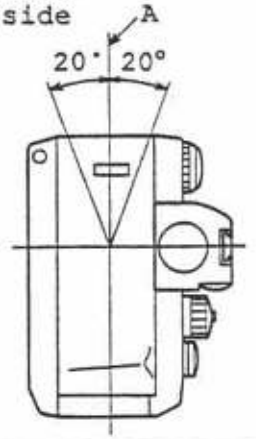


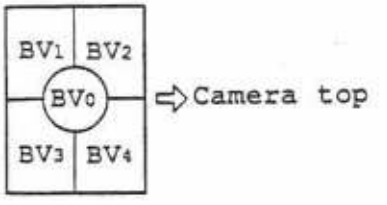
Vertical position (film advance side facing up)





Vertical position (film rewind side facing up)





5. AF driving unit

(1) AF driving motor

Rated specifications:

Voltage	DC 6V
Load	4.5gcm
No.of revolution	16250 rpm ± 1950 rpm
Current	245mA or less (185mA typical)

(2) Reduction ratio
AF driving motor coupling shaft:
15.21: 1

(3) No. of encoder pulse per one full rotation of coupling shaft:
241.4 pulse/rev.

(4) Torque of coupling shaft

130 to 300 gcm (at 20°C)
150 to 450 gcm (at -20°C)

(5) Back-lash of coupling shaft

Less than 12 pulse (at 17.9°)

6. AF lens driving interval

The AF driving motor does not rotate during the following intervals:

(1) When motors in the body other than AF motor move.
(2) Interval from 20ms after turning on shutter release Mg until next calculation result is output (differing in tracking mode).
(3) When shutter prerelease switch is off.
(4) Interval from the subject is in focus in S-AF mode until resetting the shutter prerelease switch.
(5) Interval until shutter prerelease switch is reset when the subject is not in focus due to scanning driving.
(6) When in MF mode.
(7) After two frames are advanced in C-AF and CS modes.
(8) When the lens is set to M using other than AF lens (TC) or using AF lens (TC)
(9) When DX warning is output.
(10) When focus is locked.
(11) When R2 is set.
(12) Interval until shutter prerelease switch is reset while shutter prerelease switch is on in S, C-AF mode.
(13) When R1 is set while film is loaded.

7. Film advance, shatter charge driving and delay time in each mode.

	AF lens			Non-AF lens		
	C-AF	S-AF	FM	C-AF	S-A	MF
CH	Para	Para	Para	Para	Para	Para
CL	Para (tracking mode)	Series	Series +100ms	Series +100ms	Series +100ms	Series +100ms
CS	Para	Para	Para	Para	Para	Para
S	Series	Series	Series	Series	Series	Series

Para: Film advance and shutter charge motors are driven simultaneously.
Series: Film advance and shutter charge motors are driven to advance film after shutter charge is completed.
±100ms: Shutter release operation becomes possible in 100ms after film advance and shutter charge operations are completed.

8. Exposure related signal

(1) F-Fo signal
   (1) F-Fo signal is manually detected. Detection range: 8EV in 1/6 steps (partly in 1/3EV steps)
   (2) Full aperture compensation (Ai lens) is not performed here.
   (3) Ai coupling click can be bent down, and non-Ai lenses can also be mounted, but stop-down exposure metering is used.

(2) Fo signal
   (1) For CPU built-in lenses, Fo signal is input as lens data (in 1/12EV steps linking to zoom and macro lenses).
   (2) For non CPU built-in lenses, Fo signal is manually detected. Eight positions including f/1.4 to f/11 in $\sqrt{2}$ series (in 1EV step) and non-signal are detected. For lenses with Fo signal other than in $\sqrt{2}$ series (AiS, Ai lenses), they are broken down into following groups.

f/1.2 ⟶ f/1.4
f/1.8 ⟶ f/2
f/2.5 ⟶ f/2.8
f/3.5 ⟶ f/4
f/4.5 ⟶ f/4
f/9.5 ⟶ f/11

(3) Fmin signal
(1) Fmin signal is detected by calculating lens data.
(2) Fmin signal is not detected manually.

(4) fmm signal
(1) For CPU built-in lenses, fmm signal is input as lens data.
(2) For non-CPU built-in lenses, fmm signal is detected manually for three types of lenses including 135mm or less, 135mm and over, and Teleconverter. (AiS lens)

(5) EE identification signal
(1) EE identification signal is detected manually (identifying AiS lenses and non-Ai lenses)

9. Self-timer

(1) Release shutter while setting the film advance mode selector dial to self-timer (ⓢ) position.

(2) Self-timer is controlled electronically and activated for 10 seconds. For the first 8 seconds, external LED indicator blinks at 2Hz, and at 8Hz for the last 2 seconds.

(3) Turn film advance mode selector dial to another setting from self-timer position to cancel self-timer operation.

(4) Self-timer mode will not automatically be reset after shooting.

(5) When fully depressing shutter release button in self-timer mode, self-timer shooting is not continuously performed. (It is necessary to stop shutter release operation once)

(6) AF motor driving is possible by depressing shutter release button half way during self-timer operation.

(7) In self-timer mode, BULB is released at 1/250 sec. But shooting is possible at T setting.

10. Multiple exposure shooting

(1) Pull the multiple exposure lever and release the shutter for the first exposure. Film will not advance. Depress the shutter release button again to take the second exposure. Thus multiple exposure is performed.

(2) Multiple exposure lever is automatically reset when shutter is released once. Therefore, you have to set the lever each time for double or multiple exposures.

(3) It is necessary to determine whether or not you wish to make make multiple exposures before taking a first shot. It is impossible to make second exposure for the frame already taken.

(4) Neither the mechanical frame counter nor the LCD frame counter count up frame numbers while in multiple exposure operation.

(5) In multiple exposure operation, when data back is mounted, frame counter on the data back counts up frame numbers which differ from those of mechanical and LCD frame counters. (Mechanical frame counter and LCD frame counter on the body are coincident.)

(6) When the 250 film back is mounted, the frame counter on the film back is coincident with mechanical and LCD frame counters. In this case, the frame counter counts up frame numbers in multiple exposure operation.

(7) When taking a multiple exposure shot in data imprinting mode when a data back is mounted, the data are also multiple imprinted on the frame.

(8) You can reset the multiple exposure lever manually to cancel the multiple exposure operation.

11. AE lock

Since auto exposure lock is Bv value lock, when Tv, Av values are varied, displays and controls are varied according to the following equation:

$$Bv(fix) = Av + Tv$$

12. Aperture coupling ring unit

Linked with the lens aperture coupling ring, the camera reads out exactly the aperture value from the full aperture. (Analog)

13. Film speed setting

(1) Manual mode (ISO6 -- 6400)
(2) DX mode (ISO25 -- 5000)

14. Controlling of Nikon Speedlight

(1) F4 camera identifies the following three Speedlights and controls in different ways depending on each model.

(a)	SB-24	TTL mode (including TTL-BL mode) Serial communication
(b)	SB-23	TTL mode (including TTL-BL mode)
(c)	SB-10	Linked to flash ready-light in the viewfinder.

(9) TTL mode is available within the range of film speed (ISO25 to 1000).

15. Filter change over

In the following cases, filter is changed over.

(1) When shutter pre-release switch is pushed on under the AF illuminator lighting conditions, the filter is changed over from the normal to the AF illuminator filter.

(2) When the shutter is fully depressed and then released after making blank exposure (3 frames), the original filter is returned to position from which the shutter release operation is available.

(3) When the spot-exposure metering value is BV5, filter for AF illuminator is changed over from the AF illuminator to the normal filter.

Normal filter:	680nm sharp-cut filter
AF illuminator filter:	750nm sharp-cut filter

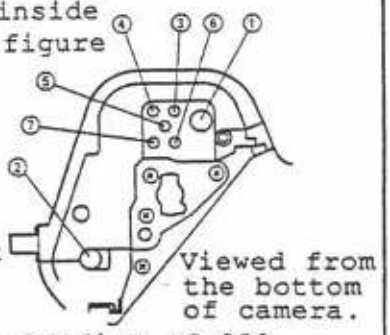
Filter change over when AF illuminator lights up (AF illuminator <--> normal)

(1) While shutter pre-release switch is on after shutter is released, filter is changed over depending on the spot-exposure metering values.

(2) While shutter pre-release timer is activated after shutter is released, filter change over operation is locked.

16. Battery pack contacts

(1) There are seven contacts on the top inside of the battery pack as shown in the figure below:



1. Power supply terminal
2. Power supply terminal
3. Shutter release signal contact
4. Shutter prerelease signal contact
5. Film advance signal contact
6. Battery type identify contact
7. Film back contact (detecting the loading of 250 multi-control back;MF-24)

(2) Contacts for each combination of battery pack are as follows:

1, 2	Battery pack (AA penlight batteries x 4)
1, 2, 3, 4, 6	Battery pack (AA penlight batteries x 6)
1, 2, 3, 4, 6	External power supply pack
1, 2	Lithium battery pack
1, 2, 3, 4, 5, 6, 7	250FB battery grip

(3) Power is turned off in 32 seconds when shutter speed dial is set to T position, not in 16 seconds.

(4) Exposure metering and focusing distance metering is effective while shutter pre-release timer is on, but AF lens is controlled while shutter release button is depressed half way.

17. Power supply switch

(1) Power is off when film advance mode selector dial is set to L. Shutter pre-release functions are effective when film advance mode selector is set to CH, CL, CS, S, and self-timer position.

(2) Shutter pre-release timer operates for 16 seconds. When operating following items, the timer operates for 16 seconds after the final operation. But when the shutter is released, the timer operates for 16 seconds after the completion of the mechanical charge operation.

1. Shutter release button (shutter pre-release, and shutter release operations)
2. Exposure compensation dial
3. Film advance mode selector dial
4. Shutter speed dial
5. Lens aperture ring
6. Auto exposure lock
7. Exposure mode selector dial
8. AF lock button
9. Other key operations as accessories (MF-23, SB-24, etc.)

18. Battery check

(1) When the battery pack MB-20 (AA battery x 4) is mounted, the battery can be checked by operating the shutter pre-release timer located on the body.

1. Battery can be used when the shutter pre-release timer operates for 16 seconds.
2. If the timer does not respond when the shutter pre-release is operated, the battery is exhausted.
3. The battery can not be used when indicators do not light up and shutter release is locked.

As it is impossible to carry out a battery check when NiCd or Lithium batttery pack are used, please be reminded that both will give an incorrect display.

(2) When the battery pack MB-21 (AA battery x 6) is mounted, use the MB-21 battery checker for battery check.

1. The battery can be used when two LED indicators light up.
2. The battery can be used when one LED indicator lights up, though the film does not advance at regular speed.
3. It is recommended to change the battery when no LED indicator lights up, even if the shutter release operation is not locked.

19. Battery current consumption (using battery pack MB-20 with Multi-photomic finder at room temperature (20°C))

1. Less than 5 µA when power switch is off.
2. Approx. 10 µA when power switch is on (shutter pre-release switch is off).
   (Approx. 100 µA when R2 lever is on.)
3. Approx. 180mA when illuminator is off while shutter pre-release timer is on
   Approx. 220mA when illuminator is on while shutter pre-release timer is on.

(1) Continuous shooting time at bulb exposure is as follows (using new alkaline battery at room temperature):

1. 4 hours when MB-20 battery pack (AA penlight battery x 4) is used.

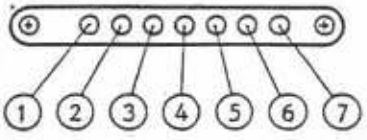
2. 6 hours when MB-21 battery pack (AA penlight battery x 6) is used.

3. 3 hours when NiCd battery (AA penlight battery x 6) is used.

20. Data back contacts

(1) There are seven data back contacts on the rear bottom of the camera under the film guide rails.

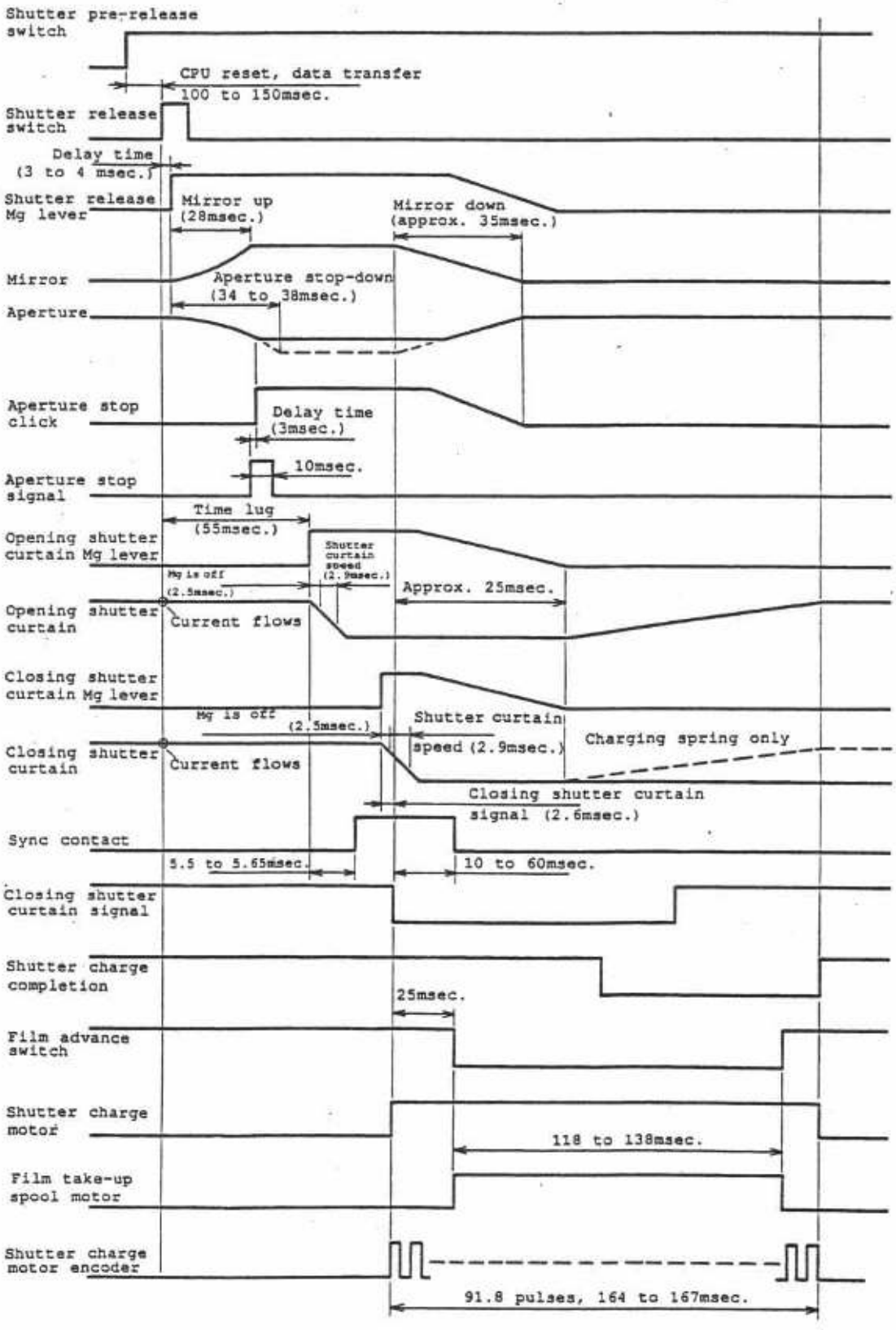
1. Inspection contact
2. Shutter pre-release / shutter release signal contact
3. Data imprinting signal contact
4. I/O contact
5. DC I/O contact
6. Clock signal contact
7. GND



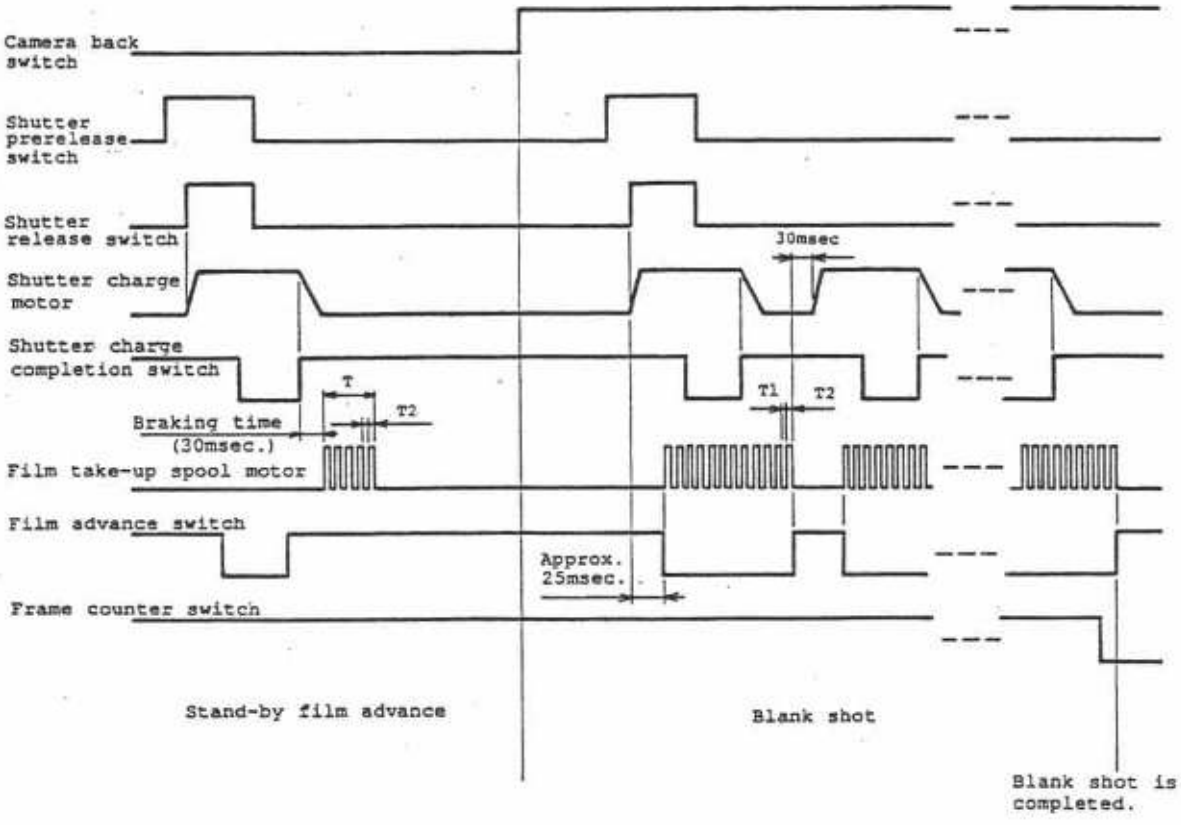
21. Guaranteed operating temperature range

1.	Function:	-10°C to +40°C
2.	Operation :	-20°C to +50°C
3.	Storage:	-20°C to +70°C

Time chart (using AA penlight battery x 4, in CH mode, AF-C mode, at room temperature)



Time chart (stand-by film advance, blank shot)



SUPPLEMENT OF NIKON F4 SPECIFICATIONS

1. Autofocus

(1) AF detection range

EV-1 to EV18 (at ISO100)

(2) AF mode

AF-C (continuous servo autofocus)
- Shutter can be released regardless of focus status; in focus or out of focus.
- The camera continues focusing according to the movement of the subject for as long as you keep the shutter release button lightly pressed.
- The camera switches to focus tracking mode at AF-C+CL. Shutter release timing in focus tracking mode is after the AF sequence.

AF-S (single servo autofocus)
- Once the subject is in focus, the focus stays locked. Shutter can be released.
- The focus stays locked for as long as the shutter release button is lightly pressed.

MF (manual focus)
Focus aid operation is possible.

(3) Film advance and mechanical charge at each focus mode.

	AF lens			Non AF lens		
	AF-C	AF-S	MF	AF-C	AF-S	MF
CH	Parallel			Parallel		
CL	Parallel Focus tracking	Series	Series +100ms	Series +100ms	Series +100ms	Series +100ms
CS	Parallel			Parallel		
S	Series			Series		

Parallel: Controls film advance and mechanical charge motors simultaneously.
Series: Film is advanced after the completion of mechanical charge.
+100ms: Shutter is released in 100ms after the completion of film advance and mechanical charge operations.

(4) Filters for autofocus

Two filters for normal shooting and AF illuminator are incorporated which switch automatically according to the shooting situation to improve AF accuracy by eliminating the error of illumination. (See below)

① Filter will be switched when the spot metering value is less than BV2 or over BV5 as described below while pressing the shutter release button lightly under the AF illuminator firing-condition.

a. AF illuminator filter when the spot metering value is BV2 or less.
b. Normal shooting filter when the spot metering value is BV5 or over.

There is some difference in metering values between "a" and "b" (as mentioned above) so that the filter is not switched due to slight variation of brightness.
The filter is not switched when the shutter release button is not lightly depressed(or shutter prerelease timer is activated.) As a result, the filter for normal shooting will be switched to the one for AF illuminator when the AF illuminator firing condition is satisfied.

AF illuminator firing conditions:
- The power is ON and the flash unit is mounted.
- Focus mode is set to AF-S.
- Spot metering value is less than BV2.
- The focus does not stay locked.
- AF lens is mounted.

② When the filter moves back and forth to remove dust on the filter after the completion of auto film loading, regardless of focus mode selection. (Shutter can be released during this operation.)

(5) Autofocus lock

With the AF-L button or the autofocus lock button on the lens side depressed, focusing operation will be locked, AF display will be locked, and shutter prerelease timer is extended.

2. Metering

(1) Exposure metering system

TTL matrix metering,
TTL center-weighted metering and
TTL spot metering

(2) Full aperture exposure compensation

Electrical exposure compensation

(3) Metering range (at f/1.4, ISO100)

EV 0 TO EV21 (up to EV16 + 1/3) with TTL matrix metering.
EV 0 to EV21 (with multi-meter finder DP-20), EV2 to 21 (with AE action finder DA-20) with TTL center-weighted metering.
EV2 to EV21 with TTL spot metering.

(4) Metering mode and finders

	Matrix	Center-weighted	Spot
Multi-meter finder DP-20	O	O	O
AE action finder DA-20	X	O	O
6x high magnification finder DW-21	X	X	O
Waist-level finder DW-20	X	X	O

(5) Matrix metering (with multi-meter finder DP-20 mounted)

Metering algorithm pattern is about the same as that of F-801
A pair of SPD matrix sensors (divided into three segments).
Matrix metering is activated when AF lens (built-in CPU), AI lens, series E lens or AI lens is mounted. (Modified AI is not available.)

Metering system is automatically changed in center-weighted metering mode when a lens other than one of those mentioned above is mounted, or no lens is mounted in matrix metering mode. For further details, see your instruction manual.

Metering area and its output
Two matrix vertical sensors incorporated in the multi-meter finder detect the vertical and horizontal position. When the sensor detects the vertical position of the camera, the metering output of the top and bottom of the segments changes automatically. (The sensor does not detect the reverse position.) See page M5.

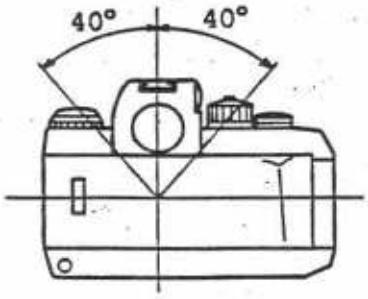
(6) Center-weighted metering

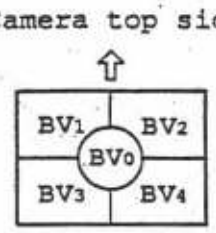
Multi-meter finder DP-20 calculates the correct exposure by using the metering output (BV0) of the SPD sensor. (See page M5.)
Central-weighted metering concentrates 60% ± 10% of the metering of the meter's sensitivity.(Approx. 12mm circle at the center of the viewfinder).
AE action finder DA-20 calculates the correct exposure by using the metering output of a cell of the SPD on the upper part of the eyepiece.

(7) Spot metering

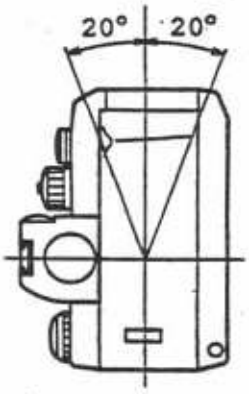
The spot metering sensor is incorporated into the camera body. SPD is located in the AF sensor module.
The area metered is represented by the approx. 5mm-diameter circle at the center of the viewfinder, equivalent to the area of the prism of the type K focusing screen.

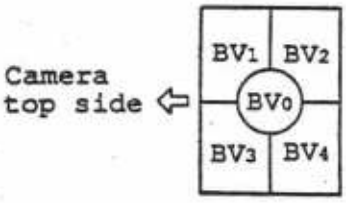
Angle: 90° ± 1°
< Normal position >





< Vertical position
(film advance side is up) >





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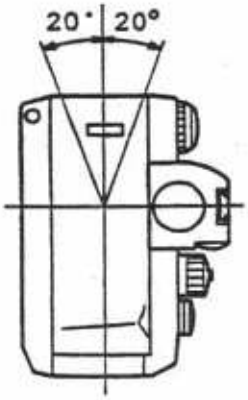
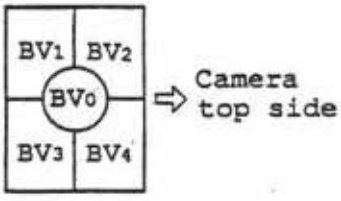




3. Exposure control

(1) Programmed auto exposure modes (P, PH mode)

P, PH mode with DP-20 multi-meter finder mounted

Item	Description
Built-in CPU lens	P and PH modes are available.
Non-CPU lens (including AF lens for F3)	Automatically shifted to A mode Viewfinder display also shifted to A mode
Shutter speed control	Refer to the EV chart (controlled within the range of 30 to 1/8000 sec.)
Shutter speed display	Indicated in 1/2EV steps in the viewfinder
Aperture value control	Refer to the EV chart (controlled within the range of f-number (F-F0) of the lens mounted)
Aperture value display	Indicated in 1/2EV steps in the viewfinder
Alert display	FEE -> • FEE appears if the lens is not set to the aperture value within the range of 2/3EV from the smallest aperture setting. • Shutter release is not locked. • Programmed exposure control is performed based on that aperture value as its smallest one.
When shutter dial is set to "T" setting.	Shifted to M mode: • Shutter speed is set to "T" setting. • Stops down to the smallest aperture value (specified aperture value) • Neither shutter speed, aperture value, nor exposure mode are displayed in the viewfinder. "--" sign is displayed instead in place of shutter speed. Remains in P mode when set to "X", "B" or other settings.
Overexposure or underexposure	HI or Lo sign appears in the viewfinder Shutter release is not locked.

(2) Aperture-priority auto exposure mode (A mode)
A mode with DP-20 multi-meter finder mounted

Item	Description
CPU built-in lens	A mode is available.
Non-CPU lens (including AF lens for F3)	A mode is available. This mode operates with virtually all Nikon lenses.
Shutter speed control	Controlled within the range of 30 to 1/8000 sec.
Shutter speed display	Indcated in 1/2EV steps in the viewfinder
Aperture value	Can be set to within the f-number (F- F0) of the lens mounted.
Aperture value display	Optical direct reading
When shutter dial is set to "T" setting.	Shifted to M mode: • Shutter speed is set to "T" setting. • Stops down to the smallest aperture value (specified aperture value) • Neither shutter speed nor exposure mode are displayed in the viewfinder. "--" sign is displayed instead in place of shutter speed. Remains in A mode when set to "X", "B" or other settings.
Overexposure or underexposure	HI or Lo sign appears in the viewfinder. Shutter release is not locked.

(3) Manual exposure mode (M mode)
M mode with DP-20 multi-meter finder mounted

Item	Description
Shutter speed	Can be set to "T", "X", or 4 to 1/8000 sec. in 1EV step.
Shutter speed display	Indicated in 1EV step in the viewfinder
Aperture value control	Can be set to within the f-number (F- F0) of the lens mounted.
Aperture value display	Optical direct reading
Exposure display	Indicated in bar-graph, 1/3EV steps within ± 2EV

(4) Shutter-priority auto exposure mode (S mode)

S mode with DP-20 multi-meter finder mounted

Item	Description
CPU built-in lens	S mode is available.
Non-CPU lens (including AF lens for F3)	Automatically shifted to A mode Viewfinder display also shifted to A mode.
Shutter speed control	Can be set to within the range of 4 to 1/8000 sec. in 1EV step.
Shutter speed display	Indicated in 1EV step in the viewfinder
Aperture value control	Can be set to within the f-number (F- F0) of the lens mounted.
Aperture value display	Indicated in 1/2EV steps in the viewfinder
Alert display	FEE -> • FEE appears if the lens is not set to the aperture value within the range of 2/3EV from the smallest aperture setting. • Shutter release is not locked. • Programmed exposure control is performed based on the assumption that aperture value is at its smallest setting.
When shutter dial is set to "T" or "B"setting.	Shifted to M mode: • Shutter speed is set to "T" or "B" setting. • Stops down to the smallest aperture value (specified aperture value) • Neither shutter speed, aperture value nor exposure mode are displayed in the viewfinder. "--" , or "-"sign is displayed instead in place of shutter speed. Remains in S mode when set to "X" or other settings.
Overexposure or underexposure	HI or LO sign appears in the viewfinder. Shutter release is not locked. When aperture control is necessary over the aperture range of the lens, specified shutter speed will not be shifted automatically.

(5) Film speed setting

Manual film setting	ISO6 to ISO6400
DX-coded film setting	ISO25 to ISO5000
In DX mode	If camera back is closed without loading DX-coded film or patrone, an LED indicator blinks to alert at 8Hz, and shutter release is locked and an auto film loading becomes impossible.

If DX-coded film patrone is loaded, but the film speed is set manually, the camera gives priority to the manually set ISO number.

(6) Exposure compensation
You can compensate exposure within the range of ± 2EV (in 1/3EV steps)
Nothing is displayed in the viewfinder when compensation value is set to 0.
Compensation value displayed does not include the compensation value due to accessories (MF-23, SB-24, etc.)

(7) Auto exposure lock
Since this function memorizes the BV value, the controlled exposure value and its display value will vary as TV and AV values change in P, PH, A, or S mode. Shooting is possible in this state.
BV (fix) = AV + TV

While exposure is locked, "EL" appears in the viewfinder (with DP-20 multi-meter finder mounted). When the simultaneous lock lever is being turned, auto exposure and autofocus can be locked at the same time by pressing the AF-L button. Shutter prerelease timer is delayed while pressing the AE-L button.

(8) If you turn the simultaneous lock lever to (•), then AE-L and AF-L buttons work independently. If you turn the lever to (••), then both auto exposure and autofocus can be locked at the same time when you press the AF-L button.

(9) Exposure related signals
F-F0, F0, Fmin, fmm, EE

(10) Shutter speed dial
1/8000, . . . 4, X, T, B.

(11) Shutter unit (Nikon's original development)

Special tungsten-alloy shutter balancer absorbs vibration due to the shutter curtain travel.
Dual multi-bladed curtain system: When shutter release button is fully depressed, the rear curtain goes up -> the front curtain starts traveling downward -> the rear curtain follows the front curtain downward -> original dual-curtain formation.

Aluminum-alloy blades: AL (aluminum) x 2 + CFRP (carbon fiber) x 2

C: Carbon
F: Fiber
R: Resin
P: Plate

Shutter curtain travels from up to down.
X sync contact: Semiconductor trigger system same as that of F-801.

(12) T (time) exposure

T operation = Set the shutter dial to "T" setting
↓
Shutter release
↓
Front curtain travels
↓
If "T" exposure is 32 seconds or longer: Power turns off, X contact turns off, and the LCD frame counter (FC) counts up +1.
↓
Turn the shutter speed dial to any other setting to cancel "T" setting.
↓
Rear curtain travels (This is not dual-curtain formation)
↓
Press the shutter release button lightly.
↓
The mirror moves downward, film is advanced

*If T setting is canceled before shutter prerelease timer turns OFF, immediately the mirror moves downward and film advances in 32 seconds after shutter is released.

Rear curtain sync flash photography at T (time) setting is automatically switched to front-curtain sync.(Rear-curtain sync is impossible.)

T (time) setting
- Basically mechanical control.
- Current flows to the Mg for 32 seconds after shutter is released at T setting. The power is ON for 32 seconds to activate the camera body for more than 20 seconds at "T" setting, because current flows for maximum 20 seconds in repeating flash mode of the SB-24.
- Click sound may be heard in 32 seconds after releasing the shutter at T setting, this means that the shutter curtain held by Mg is switched to that held by mechanically.

(13) Self-timer

10-sec. self-timer	Self-timer LED starts blinking at 2Hz during the first 8 seconds, and at 8Hz during the final two seconds.
Cancel of self-timer	Turn the film advance mode selector to another setting. The self-timer mode is not canceled automatically when a self-timer shooting has been completed.
B (bulb)	Shutter speed is automatically set to 1/250 sec. at the "B" setting.
T (time)	Self-timer shooting is possible at "T" setting.
AF and AE	Autofocus and auto exposure modes activate in self-timer operation. Autofocus driving is possible by pressing the shutter release button lightly in self-timer operation.
AF-S	Shutter is released whether or not the subject is in focus, even in the AF-S mode, after the timer operation ends.
Sequence	Film advance and mechanical charge operations return to series driving when self-timer shooting has been completed.

(14) Multiple exposure

The multiple exposure lever returns to its original position after the exposure.

Frame counter and databack when taking multiple exposures. (with DP-20 multi-meter finder)

Body alone	Frame counter of the body does not count up. LCD counter (in FD) does not count up.
MF-23 camera back	Frame counter of the body does not count up. LCD counter (in FD) does not count up. Frame counter of the MF-23 counts up. The frame number does not correspond to that of the body because the frame counter counts up every time the film advance switch turns ON and OFF. (This is mechanically unavoidable.)
MF-24 camera back	Frame counter of the body does not count up. LCD counter (in FD) counts up. Frame counter of the MF-24 counts up. Frame count-up signal is sent from the MF-24 camera back, therefore the frame number does not correspond to that of the body. (This is mechanically unavoidable.)

* Multiple data are imprinted when taking multiple exposures with a camera back mounted.
* The MF-24 incorporates downcount frame number capability. This frame number does not correspond to that of the body.

4. Motor drive sequence and film advance control

(1) Motors
Shutter charging motor takes care of mirror down operation, aperture, and charging the shutter curtain.
Spool motor is in charge of advancing film.
Rewind motor rewinds the film, and changes the filter of the autofocus module.

(2) Film advance mode

CH: High-speed film advance mode (max. 5.7 fps, F4S)
CL: Continuous low-speed film advance mode (focus tracking will be available in this mode)
CS: Continuous slow and silent film advance mode (low sound level oriented.)
S: Single film advance mode.

See section (3) on page M2 for the relation between film advance modes and autofocus mode.

(3) Film loading and blank exposures

① Normal advance film loading. (Spool drive system) (Sprocket drive system when the FM-24 camera back is mounted.)

② Blank film advance
Fully depress the shutter release button while opening the camera back to rotate the film take-up spool for a certain period of time. If film is loaded, approximately 0.5 frames are advanced on the spool.
• Spool motor advances film by duty (pulse) driving in order not to damage film perforations.
• Film advance and shutter charging motors work simultaneously. The shutter charging motor rotates to release film sprocket stopper.

③ Auto film loading (Film is loaded, camera back is closed.)
Film automatically advances 2.5 to 3.5 frames at auto film loading.

Film advance: Spool motor advances film by duty (pulse) driving in order not to damage film perforations.

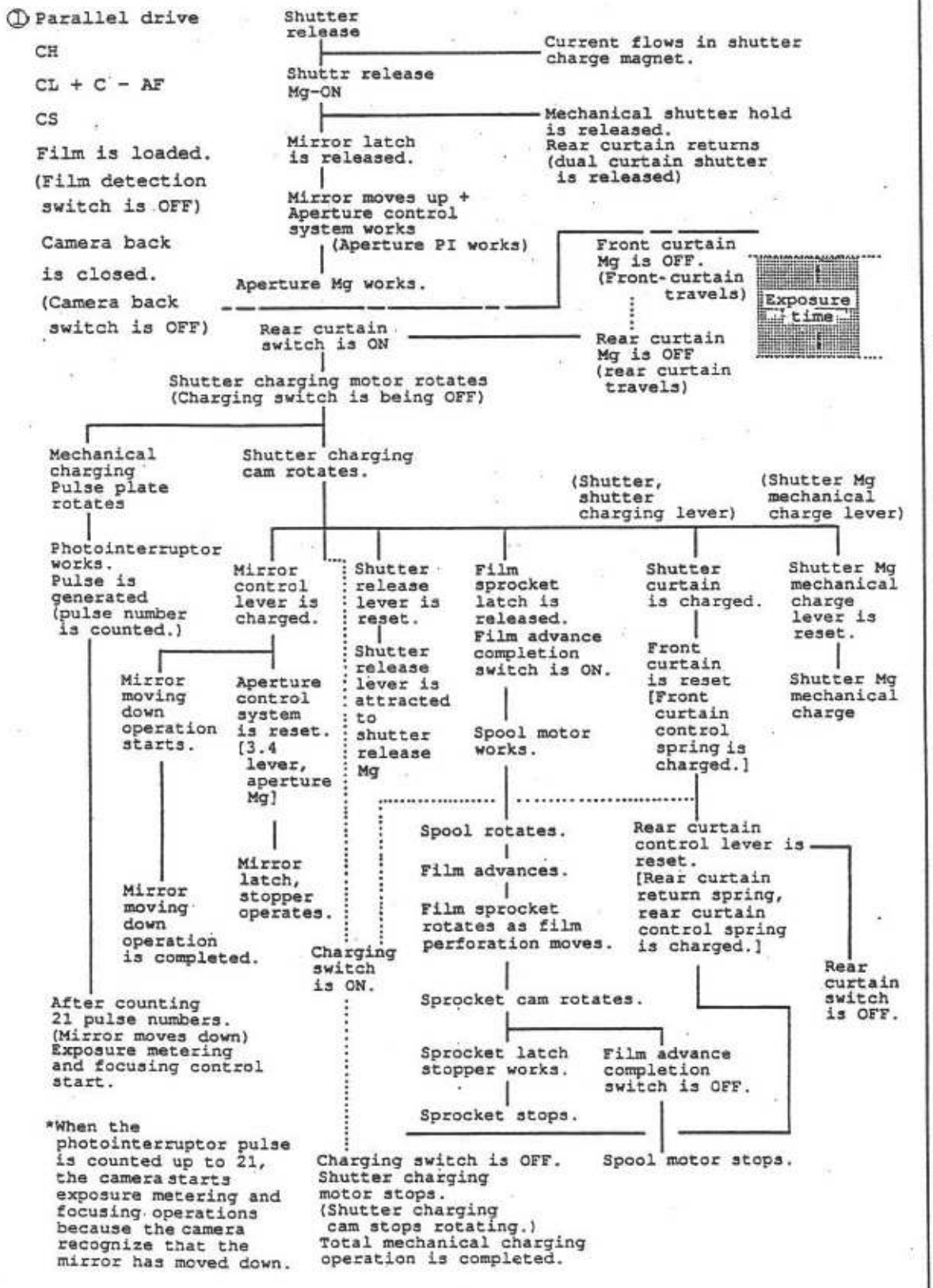
Film advance and shutter charging motors work simultaneously. The shutter charging motor rotates to release film sprocket stopper.

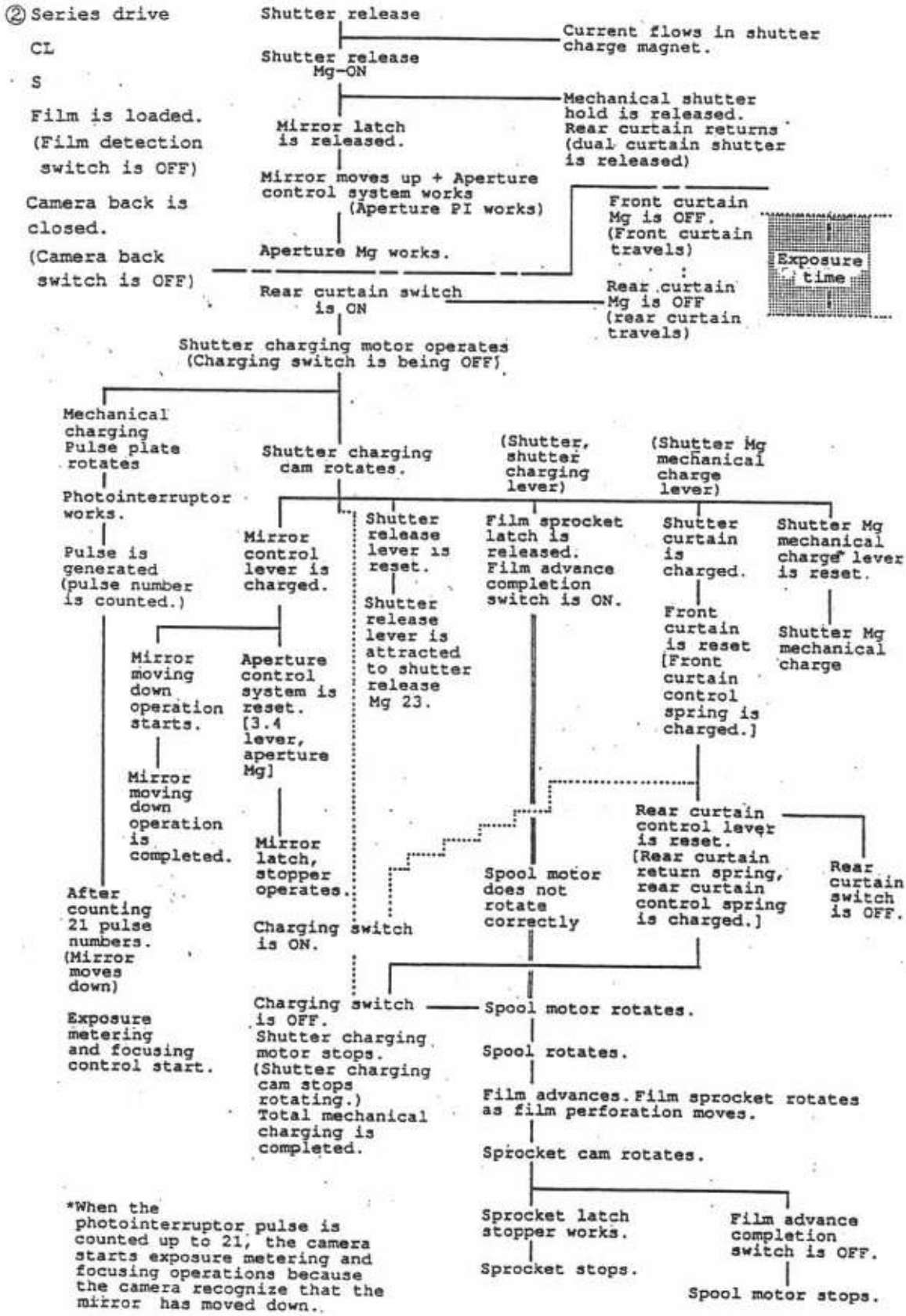
Blank exposures stop when the frame counter switch is turned OFF. (Film advances to frame 1.)

Duty ratio of the duty (pulse) driving changes as temperature and voltage vary.

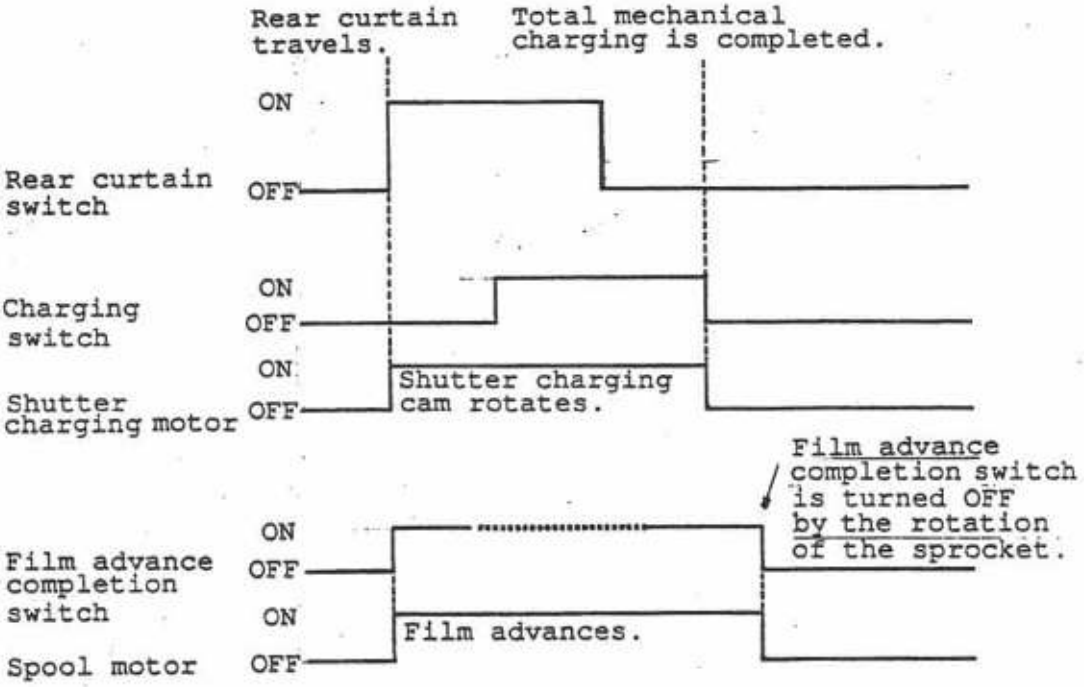
Auto film loading error	If blank exposures are not taken while the film detection switch is OFF, the film take-up spool rotates for one second and mechanical charging takes place three times (shutter charging motor rotates), the LED indicator lights up (alert LED), and the shutter release is locked.

(4) Film advance and mechanical sequence


① Parallel drive
CH
CL + C - AF
CS
Film is loaded.
(Film detection switch is OFF)
Camera back is closed.
(Camera back switch is OFF)
Shutter release
Current flows in shutter charge magnet.
Shuttr release Mg-ON
Mechanical shutter hold is released. Rear curtain returns (dual curtain shutter is released)
Mirror latch is released.
Mirror moves up + Aperture control system works
(Aperture PI works)
Aperture Mg works.
Front curtain Mg is OFF. (Front-curtain travels)
Exposure time
Rear curtain switch is ON
Rear curtain Mg is OFF (rear curtain travels)
Shutter charging motor rotates (Charging switch is being OFF)
Mechanical charging Pulse plate rotates
Shutter charging cam rotates.
(Shutter, shutter charging lever)
(Shutter Mg mechanical charge lever)
Photointerruptor works. Pulse is generated (pulse number is counted.)
Mirror control lever is charged.
Shutter release lever is reset.
Film sprocket latch is released. Film advance completion switch is ON.
Shutter curtain is charged.
Shutter Mg mechanical charge lever is reset.
Mirror moving down operation starts.
Aperture control system is reset. [3.4 lever, aperture Mg]
Shutter release lever is attracted to shutter release Mg
Spool motor works.
Front curtain is reset [Front curtain control spring is charged.]
Shutter Mg mechanical charge
Spool rotates.
Film advances.
Film sprocket rotates as film perforation moves.
Rear curtain control lever is reset. [Rear curtain return spring, rear curtain control spring is charged.]
Mirror latch, stopper operates.
Mirror moving down operation is completed.
Charging switch is ON.
Rear curtain switch is OFF.
Sprocket cam rotates.
Sprocket latch stopper works.
Film advance completion switch is OFF.
Sprocket stops.
After counting 21 pulse numbers. (Mirror moves down) Exposure metering and focusing control start.
*When the photointerruptor pulse is counted up to 21, the camera starts exposure metering and focusing operations because the camera recognize that the mirror has moved down.
Charging switch is OFF. Shutter charging motor stops. (Shutter charging cam stops rotating.) Total mechanical charging operation is completed.
Spool motor stops.


② Series drive
CL
S
Film is loaded.
(Film detection switch is OFF)
Camera back is closed.
(Camera back switch is OFF)
Shutter release
Current flows in shutter charge magnet.
Shutter release Mg-ON
Mechanical shutter hold is released. Rear curtain returns (dual curtain shutter is released)
Mirror latch is released.
Mirror moves up + Aperture control system works (Aperture PI works)
Aperture Mg works.
Front curtain Mg is OFF. (Front curtain travels)
Exposure time
Rear curtain switch is ON
Rear curtain Mg is OFF (rear curtain travels)
Shutter charging motor operates (Charging switch is being OFF)
Mechanical charging Pulse plate rotates
Photointerruptor works.
Pulse is generated (pulse number is counted.)
Shutter charging cam rotates.
(Shutter, shutter charging lever)
(Shutter Mg mechanical charge lever)
Mirror control lever is charged.
Shutter release lever is reset.
Shutter release lever is attracted to shutter release Mg 23.
Film sprocket latch is released. Film advance completion switch is ON.
Shutter curtain is charged.
Front curtain is reset [Front curtain control spring is charged.]
Shutter Mg mechanical charge lever is reset.
Shutter Mg mechanical charge
Mirror moving down operation starts.
Aperture control system is reset. [3.4 lever, aperture Mg]
Mirror moving down operation is completed.
Mirror latch, stopper operates.
Rear curtain control lever is reset. [Rear curtain return spring, rear curtain control spring is charged.]
Rear curtain switch is OFF.
After counting 21 pulse numbers. (Mirror moves down)
Exposure metering and focusing control start.
Charging switch is ON.
Spool motor does not rotate correctly
Charging switch is OFF.
Shutter charging motor stops. (Shutter charging cam stops rotating.) Total mechanical charging is completed.
Spool motor rotates.
Spool rotates.
Film advances. Film sprocket rotates as film perforation moves.
Sprocket cam rotates.
Sprocket latch stopper works.
Sprocket stops.
Film advance completion switch is OFF.
Spool motor stops.
*When the photointerruptor pulse is counted up to 21, the camera starts exposure metering and focusing operations because the camera recognize that the mirror has moved down.

Spool motor and shutter charging motor



Mechanical charge pulse

① 84 to 94 pulses are output for one sequence.

② Detection of mirror down

After counting 21 pulses, the camera recognizes that the mirror is down, and starts exposure metering and autofocusing.

③ Film advance and speed control of mechanical charge in Cs mode

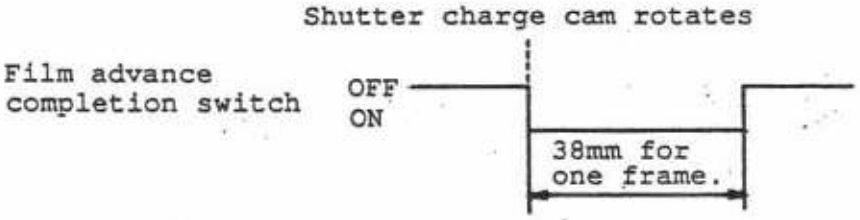
Film advance speed and mechanical charge speed are controlled by monitoring the output pulse of the mechanical charge.

(5) Detection of the end of roll

If no film advance completion signal is output within one second after the completion of mechanical charge when film is loaded, a spool motor rotates for one second, and an alert LED lights up.Shutter release operation is locked.
Completion of mechanical charge: Shutter, mirror, shutter release Mg, etc. are all charged.(Charge switch is OFF.)

Film advance completion signal:
• Same as the film advance completion switch.

Film sprocket rotates when film advances through the film take-up spool, and the film advance completion switch turns ON and OFF.



(6) Film rewind

Manual film rewind: Rewinds film after turning the film rewind lever R1.

Auto film rewind:
• Turn film rewind levers R1 (to release sprocket, R1 switch) and R2 (R2 switch) to start automatic film rewinding.
• During film rewind, an alert LED blinks at 1Hz.
• Film rewind motor stops automatically in 1.5 sec. when film detection switch is turned from OFF to ON. (No film leader)
• Film rewind motor also stops by manually releasing the R2 lever.
• Film rewind time measured at ordinary temperature (20°C) when using 36-exposure film:

Approx. 12 seconds (MB-20)

Approx. 8 seconds (MB-21)

• Frame counter in the body counts backward.

LCD frame counter in FD returns to frame number 0 just before the completion of film rewind operation. Open camera back to release the LCD frame counter.

You have the option to either leave the film leader in the camera or not by rewriting the data on the EEPROM memory chip. If you select to leave film leader, the film rewind motor stops immediately after the film detection switch turns from OFF to ON.
Film leader leaves when rewinding film when the frame counter shows less than 1 (frame counter switch is ON) disregarding EPROM data.

If you turn film rewind lever (R2) alone, an LED indicator (alert LED) blinks and alert at 8Hz.

(7) Shooting speed (Average values when using 36-exposure with fresh batteries and the shutter speed of 1/250 sec. or faster at room temperature (20°C).

(frame/sec.)

		CH	CL	CS
AF-C	MB-20	4.0	3.3	0.8
	MB-21	5.7	3.4	1.0
MF	MB-20	4.0	2.2	0.8
	MB-21	5.7	2.9	1.0

Shooting speed is not definite when setting in AF-S mode.

(8) Distance between frames (mm)

	Other than CS mode	CS mode
Standard	$2^{+0.2}_{-0.4}$	$2^{+0.7}_{-0.9}$
MF-24	$2^{+0.3}_{-0.5}$	------

(9) Sequence errors

An LED indicator (alert LED) blinks at 8Hz to alert in the following errors:

① Mechanical charge sequence error:
Mechanical charge pulse is not output for over 255ms during shutter charge completion switch turns ON until it turns OFF.

② Rear curtain sequence error:
Rear curtain switch signal is not output in 300ms after rear curtain Mg is turned OFF.

③ Aperture control error:
Aperture pulse is counted more than 21 in 10ms after aperture Mg is turned ON.

④ Sync contact close error
Sync contact has already been closed when power is ON.

No LED indicator (alert LED) blinks in the following errors:

⑤ Power voltage drops below the rated voltage of DC/DC converter.
⑥ Main CPU is hung up.
⑦ Desired number of pulses (aperture value) is not output when controlling aperture. [In this case, this is compensated by shutter speed based on the number of pulses output (aperture value)]

Errors from ① to ⑦ will be stored in EEPROM (address 30) memory when error occurs.

5. Power source

(1) Battery pack

MB-20
Alkaline-manganese batteries are acceptable. Reverse mounting preventive mechanism is provided.

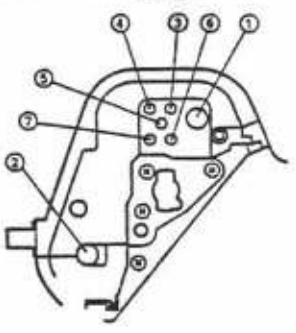
MB-21
Alkaline-manganese, Ni-Cd, and Manganese batteries are acceptable, but some Ni-Cd models can not be acceptable due to the F4's reverse mounting preventive mechanism. Vertical position shutter release button, battery check function, remote connector and battery identification switch (changes battery checker level by selecting alkaline-manganese or Ni-Cd batteries) are provided.

MB-22
Grip unit in common with the MB-21. Nikon AC/DC converter MA4 including regulator to convert 15V to 8.2V, and the AC/DC converter with 9-20V (3A or more) output power are available. Remote connector, and vertical position shutter release button are provided.

MF-24G
Battery holder and grip unit for MF-24.

(2) Battery pack contacts

Viewed from the bottom of camera.



①. Power terminal (+)
②. Power terminal (-)
③. Shutter release signal contact
④. Shutter prerelease signal contact
⑤. Film advance signal contact (controlling MF-24)
⑥. Battery identification contact
⑦. Film back contact (detecting the loading of MF-24)

Contacts for each battery pack are as follows:

MB-20:	①, ②
MB-21:	①, ②, ③, ④, ⑥
MB-22:	①, ②, ③, ④, ⑥ (but ⑥ is not effective)
MB-24G:	①, ②, ③, ④, ⑤, ⑥, ⑦

(3) Battery checker

MB-20 is mounted:

Checks battery by using shutter prerelease timer in the body side.

Shutter prerelease timer prolongs 16 seconds: Battery is usable.
Shutter prerelease timer prolongs 0 second: Battery is used up.
No viewfinder display appears, shutter release is locked: Change batteries.

MB-21 is mounted:

See specifications of the MB-21.

(4) Current consumption (when DP-20 is mounted at ordinary temperature (20°C) using MB-20.)

① Under 5μA when power switch is OFF.
② Under 10μA (approx. 100μA when film rewind lever R2 is ON) when power switch is ON (shutter prerelease timer is OFF).
③ Under approx. 180mA (when AF illuminator is OFF) and under approx. 220mA (when AF illuminator is ON), when shutter prerelease timer is ON.

(5) Continuous shooting time at the B (bulb) setting (using fresh batteries at room temperature).

Four hours (MB-20), and six hours (MB-21) with alkaline-manganese batteries.

Three hours (MB-21) with Ni-Cd batteries.

(6) Power source switch

Use following dial and buttons to prolong the shutter prerelease timer:

Shutter release button (prerelease, release)

Exposure compensation dial

Film advance mode selector

Shutter speed dial

Lens aperture ring (F-Fo signal)

AE lock button

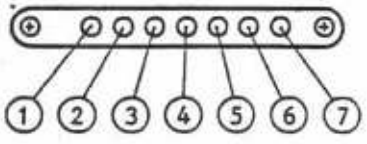
Exposure mode selector

AF lock button

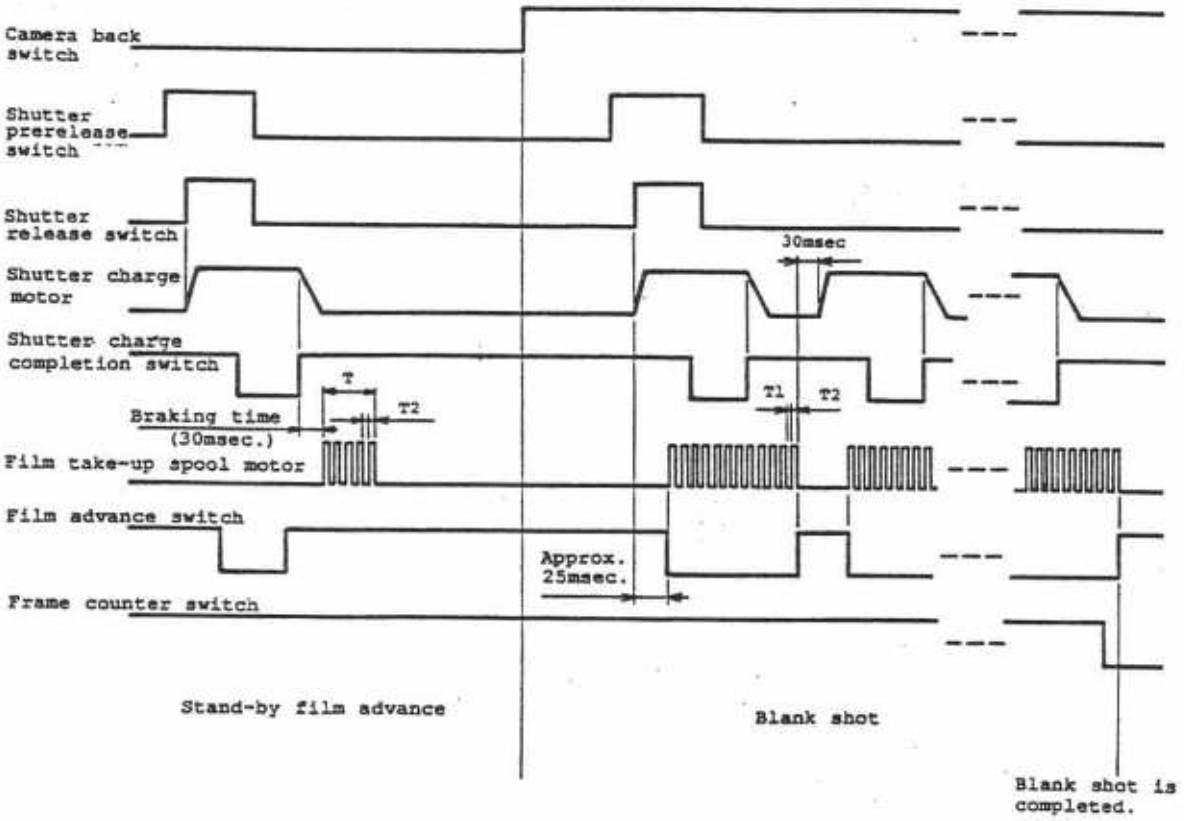
Key operations of other accessories (MF-23, SB-24, etc.)

6. Data back contacts

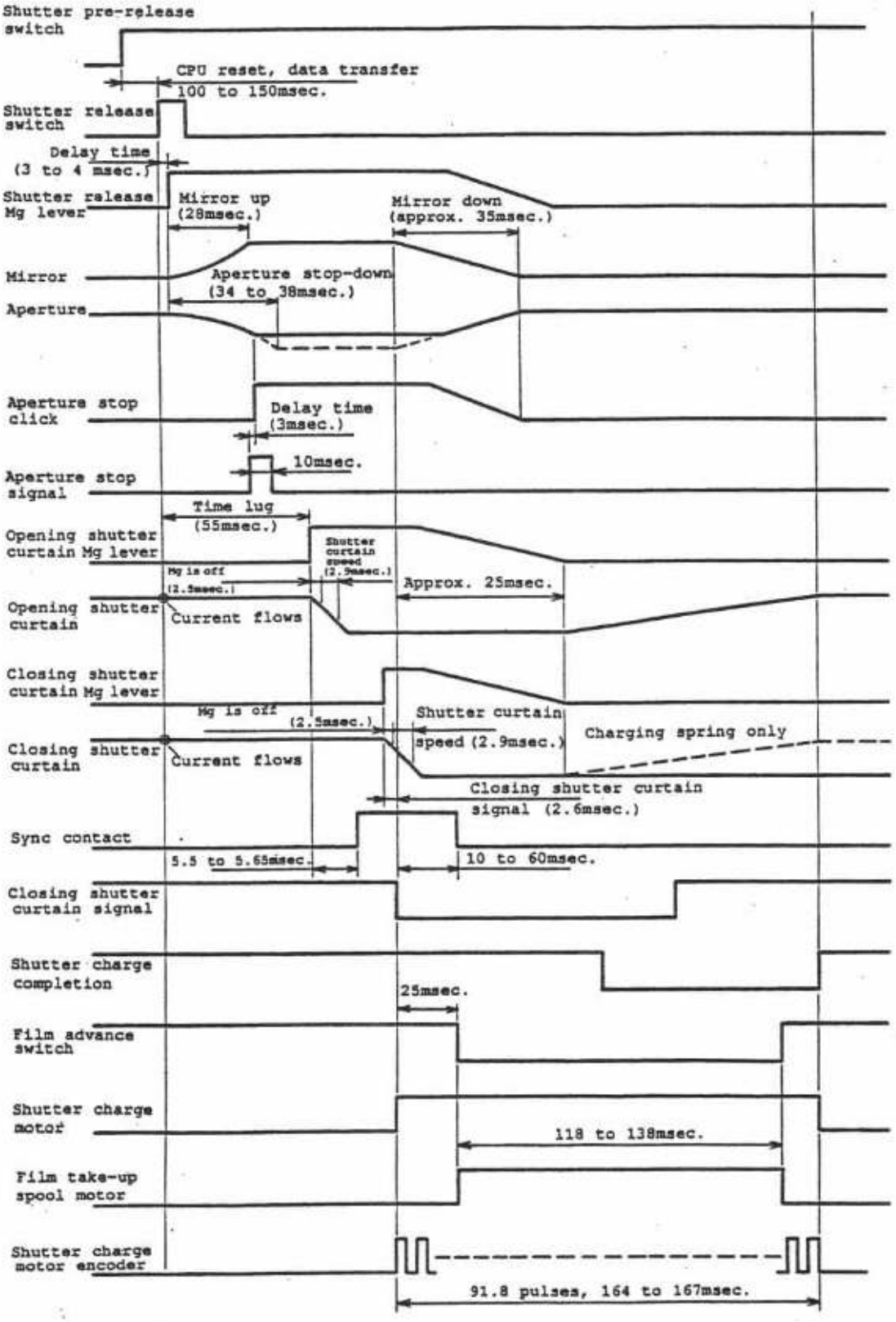
① Inspection contact
② Shutter prerelease/release signal contact
③ Data imprint signal contact
④ I/O contact
⑤ DC I/O contact
⑥ Clock signal contact
⑦ GND



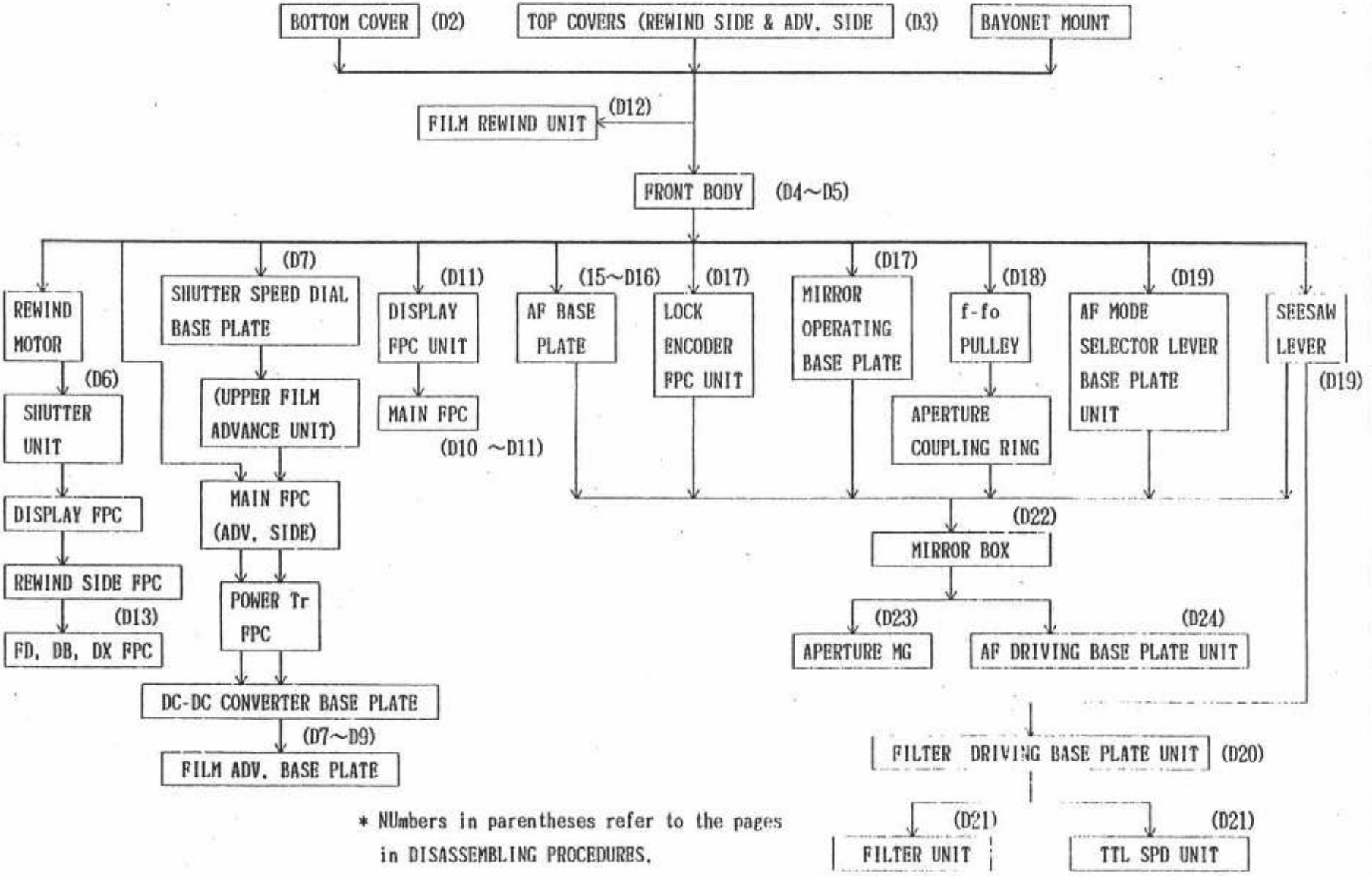
Time chart (stand-by film advance, blank shot)



Time chart (using AA penlight battery x 4, in CH mode, AF-C mode, at room temperature)



1. DISASSEMBLING PROCEDURE CHART



* NUmbers in parentheses refer to the pages in DISASSEMBLING PROCEDURES.

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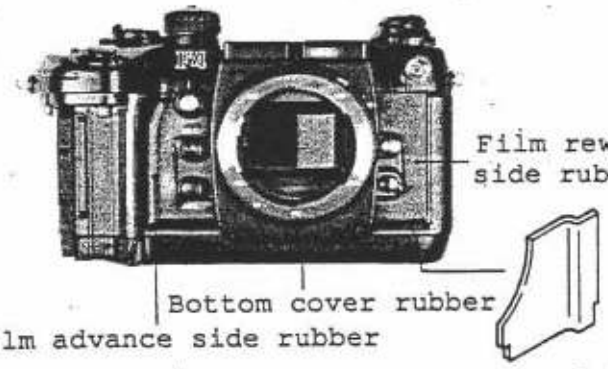
2.DISASSEMBLING

Note 1: Before disassembly, be sure to familiarize yourself with the arrangement of the lead wires, location of screws and type of screws used.

Note 2: As ICs are easily affected by static electricity, be sure to ground the camera when soldering or handling.

External parts

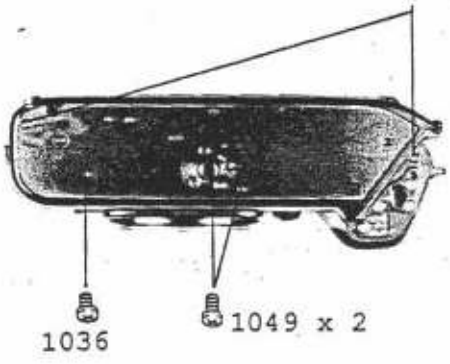


External rubber

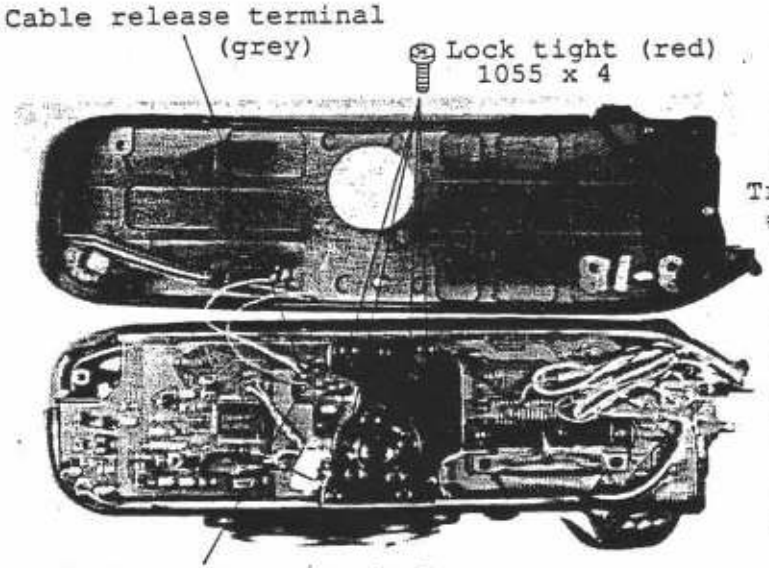
Bottom cover
#1056 x 2
#1049 x 2
#1036

(Cover plate)

1056 x 2

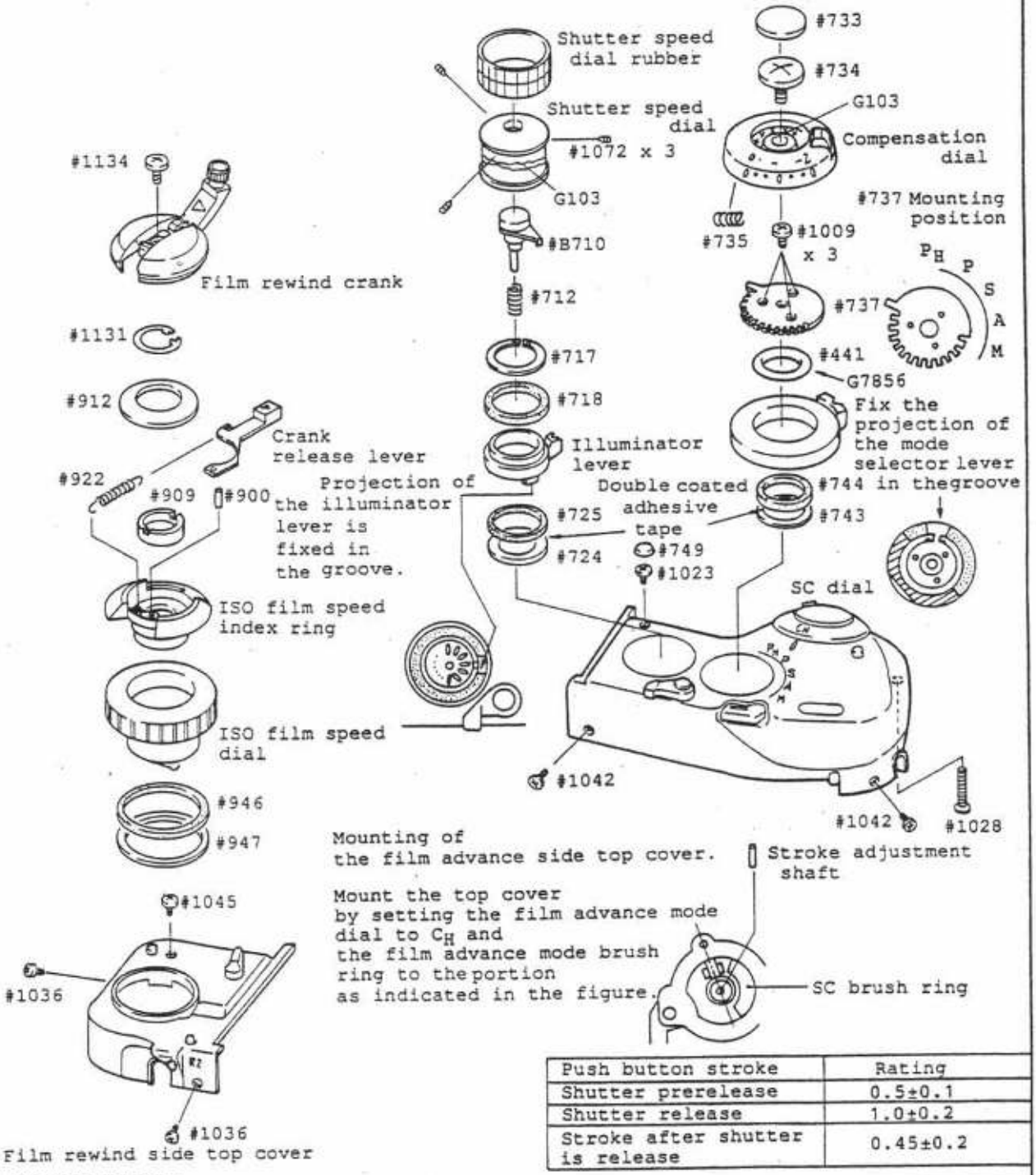


Removing cables
Cable release terminal (blue)
Cable release terminal (grey)



Tripod socket
#1055 x 4

Film rewind side top cover
Film advance side top cover



Push button stroke	Rating
Shutter prerelease	0.5±0.1
Shutter release	1.0±0.2
Stroke after shutter is release	0.45±0.2

Disassembling:
Remove the top cover by setting the R2 lever in film rewind mode.

Assembling:
Mount the top cover while holding down the R2 button by setting the R2 lever in film rewind mode.

Stroke adjustment shaft	Length	Identification (groove)
1K360-032	4.95	None
1K360-033	5.10	1
1K360-034	5.25	2
1K360-035	5.40	3
1K360-047	5.50	4

(□ : junction cable)

Removing front body

— Bottom body

Spot SPD (orange)

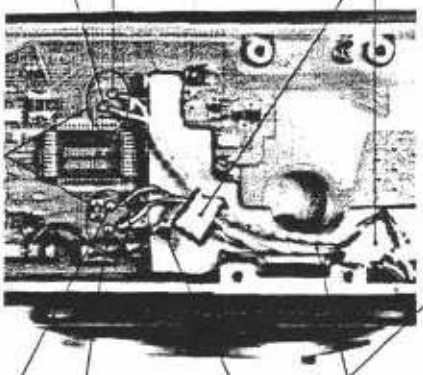
Spot SPD (white)

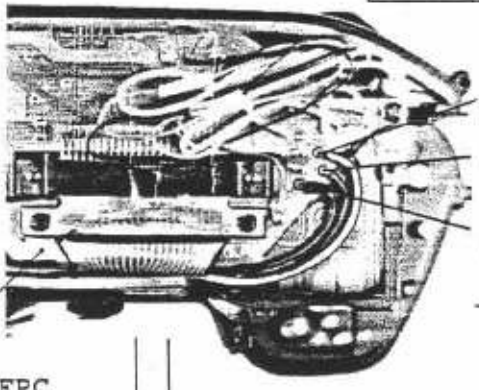
Tape for arranging cables

Remove cables by referring to the figure.

Remove connectors

Spread moisture-proof agent on this area.





VBAT (orange)

MGND1 (black)

MGND2 (black)

TTL-SPD (blue)

TTL-SPD (yellow)

Shielded FPC

Main FPC -- shielded FPC (black) l = 25mm

Remove connectors

— Film advance side press contact

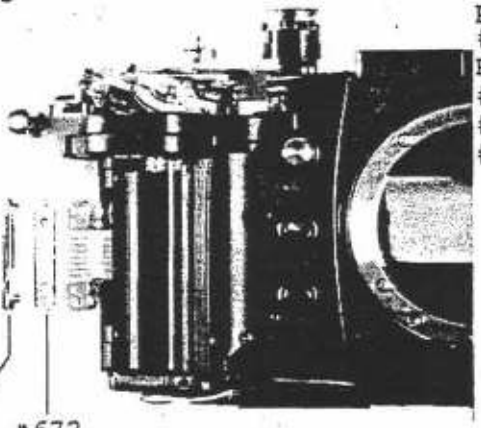
Film advance side press contact lid

#1127 x 4

#1023 x 2

B670

#672



Film advance side press contact lid

#1127 x 4

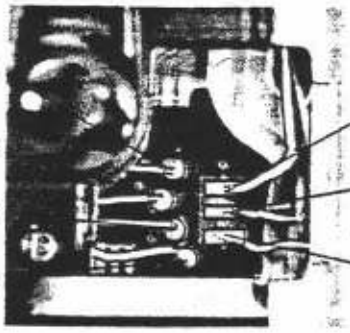
Press contact

#1023 x 2

#B670

#672

— Film rewind side



AGND (blue)

Vref (purple)

f_0 (green)

$f-f_0$ (yellow)

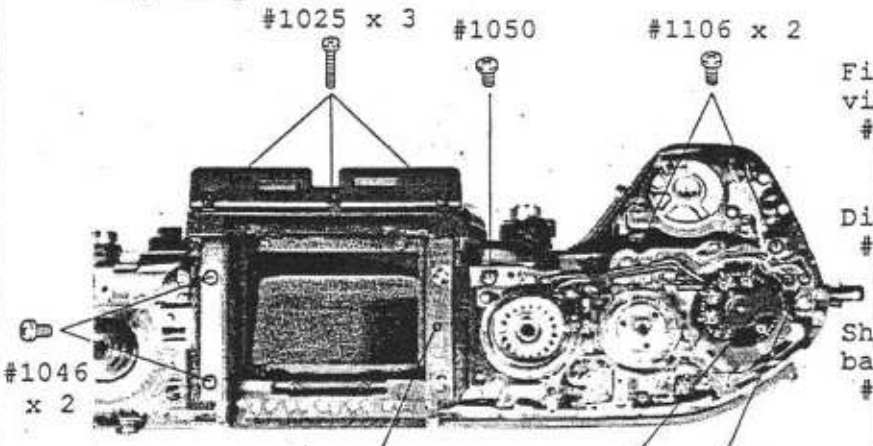
TC switch (White)

fmm switch (brown)

EE switch (orange)

Remove cables by referring to the figure.

— Top body



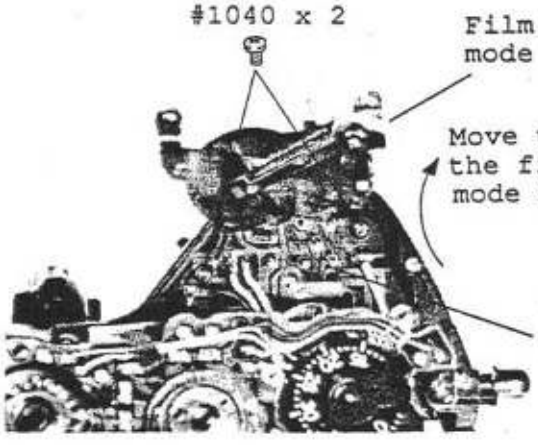
Film rewind side viewfinder rail
#1046 x 2

Display block
#1025 x 3

Shutter speed dial base plate
#1050

Film advance mode base plate
#1106 x 2

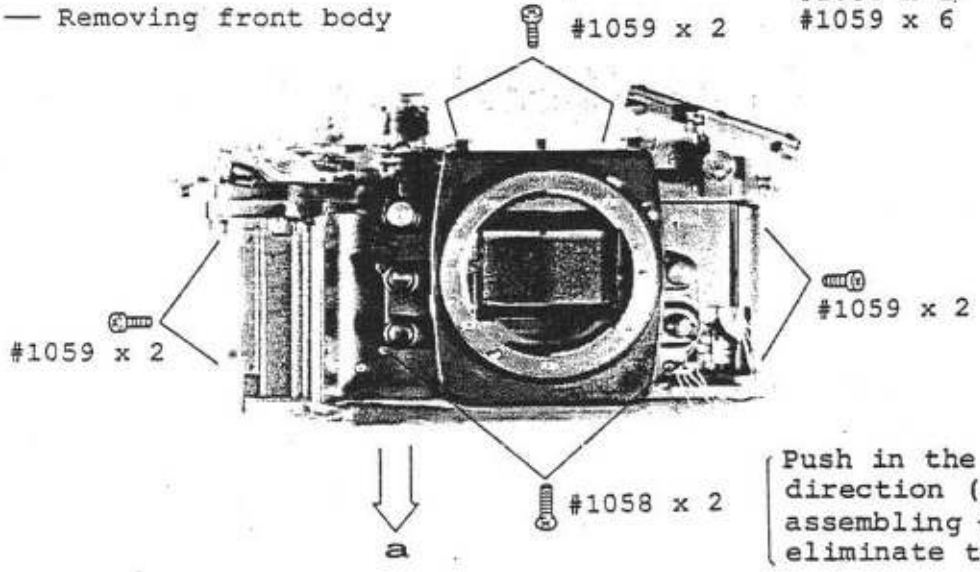
Remove cables
Self-timer LED/A (orange)
Self-timer LED/K (green)



Power supply base plate
#1040 x 2

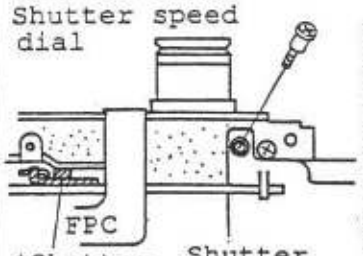
Front body
#1058 x 2
#1059 x 6

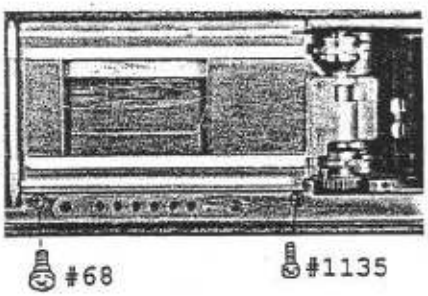
— Removing front body



Push in the arrow direction (a) in assembling to eliminate the Play.

Shutter unit

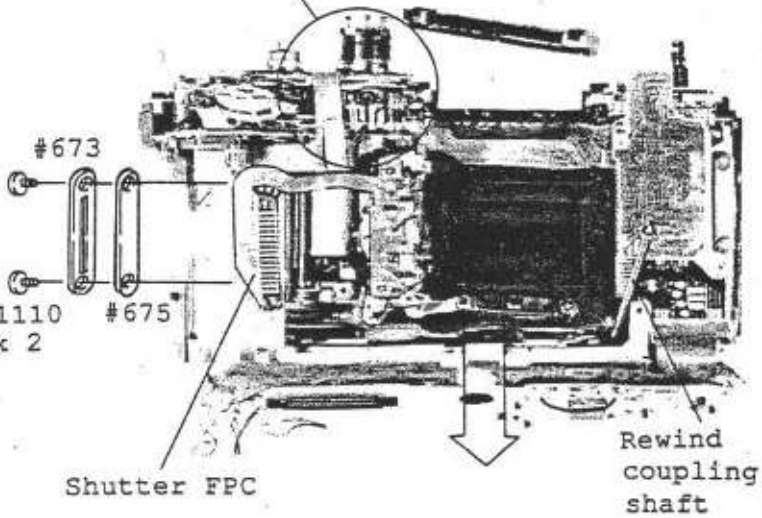




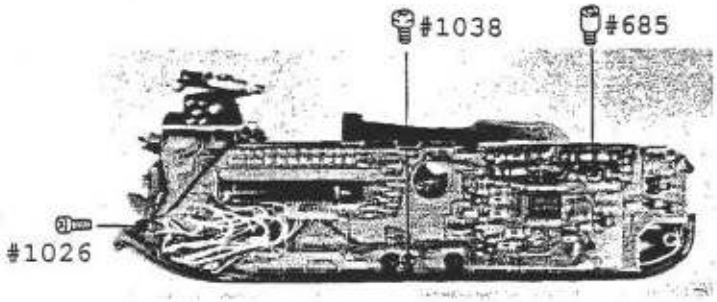
*Release shutter while holding down the shutter release lever

Shutter mounting screws
#66 #68 #1135

Press contact
#1110 x 2
#673 #675
Take out the shutter FPC from the press contact unit.



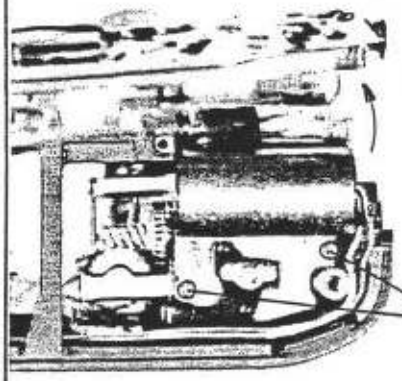
Bottom body FPC
#685 #1026
#1038



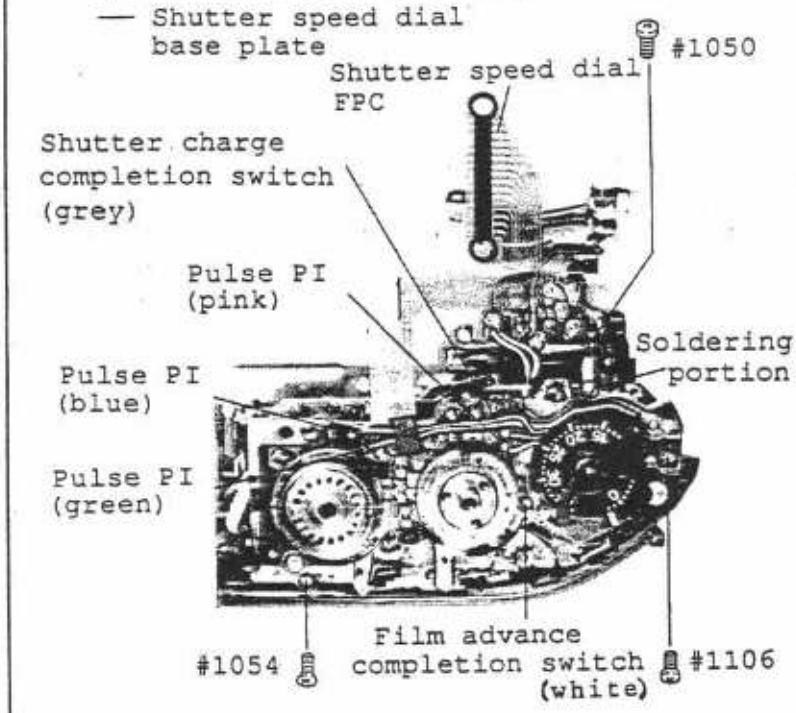
Set up the bottom body FPC and remove the film rewind motor #1019 x 2

Remove shutter by sliding it downward.

Set up the bottom body FPC



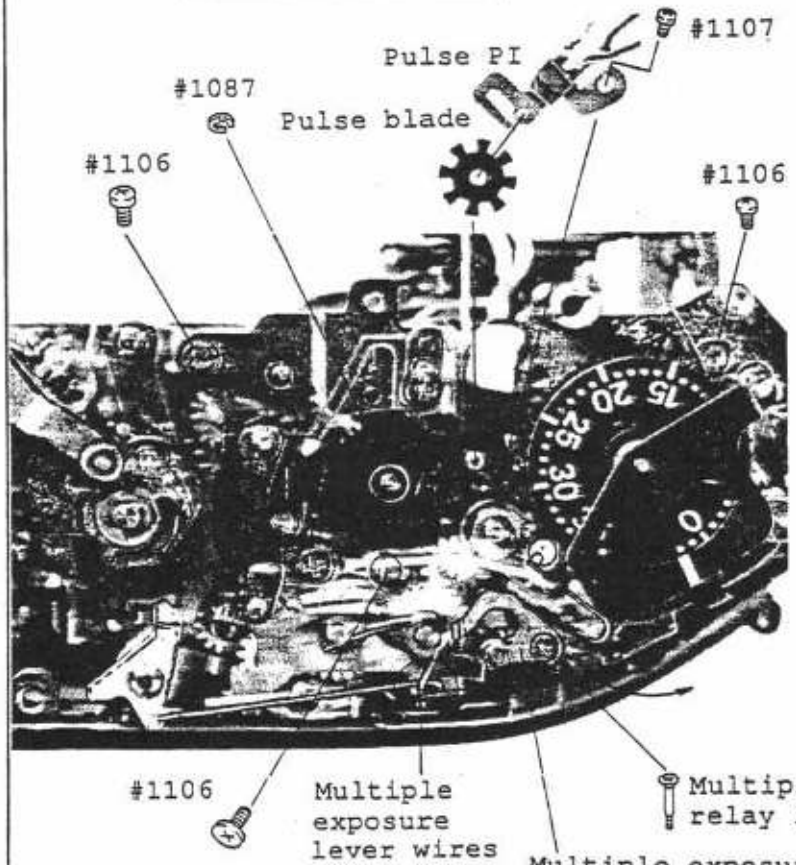
Upper film advance unit



Press contact (See page D6)
Remove shutter speed dial FPC

Remove cables and soldered portion (See figure at left)

Shutter speed dial base plate
#1050 #1054
#1106



Pulse PI #1107

Pulse blade

E ring (#1087)

Remove multiple exposure lever wires

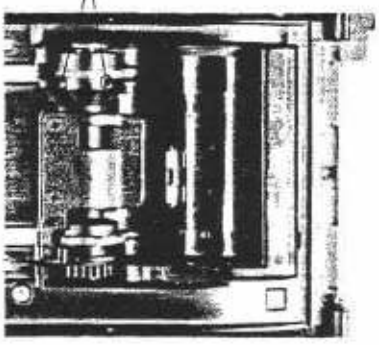
Multiple exposure relay lever shaft

Upper film advance unit base plate
#1106 x 3

Remove the film advance unit base plate by moving the multiple exposure relay lever shaft in the direction as indicated by an arrow.

— Film advance base plate

#1074 x 2



*Release shutter before disassembling the film advance base plate (Refer to page D6)

Unfasten film sprocket screws
#1074 x 2

Power supply base plate mounting screw #1021

Bottom body FPC mounting screw #1026

Remove cables
(See the figure at left)

Film advance mode base plate

Insulating tape

Power supply base plate

GND (black)

Vcc1 (red)

Vcc1 (grey)

+5.5V (brown)

+12V (orange)

CONTR (yellow)

#1021

#1026

Lever under the shutter release through shaft

#1019

Lever under the shutter release through shaft
#1019

Bottom body FPC

Mechanical charge motor (MM)

(yellow)

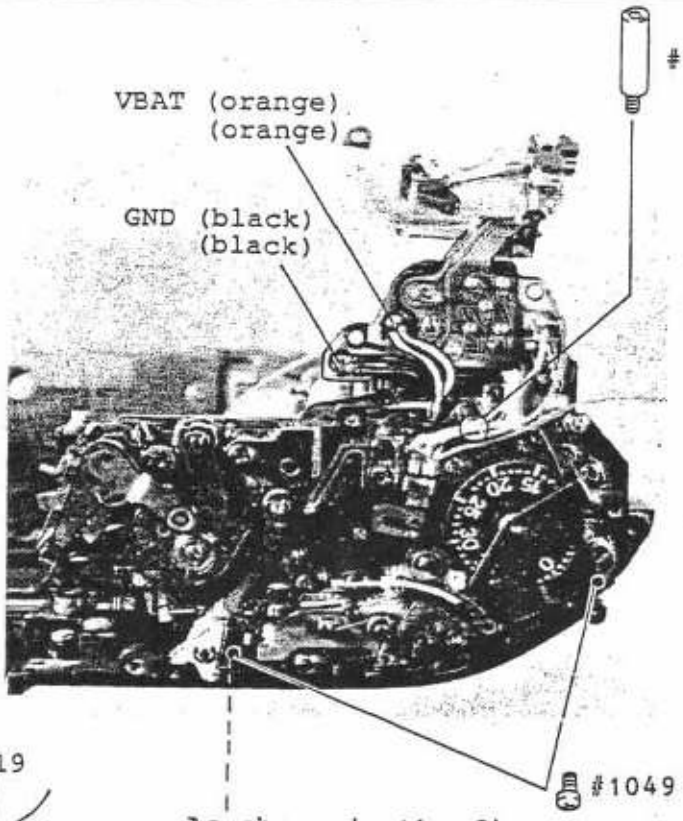
(black)

(red)

(black)

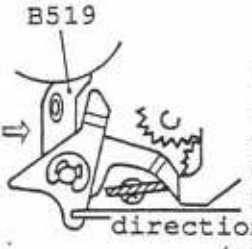
Film take-up spool motor (FM)

Power Tr. FPC



Remove cables
(See the figure at left)

Film advance base plate mounting screw
#774, #1049 x 2



As shown in the figure at left, if you can not unfasten the screw (#1049) due to the lever, push the lever (#B519) in the direction indicated by the arrow (a) to move back the lever. Then you can remove the screw.

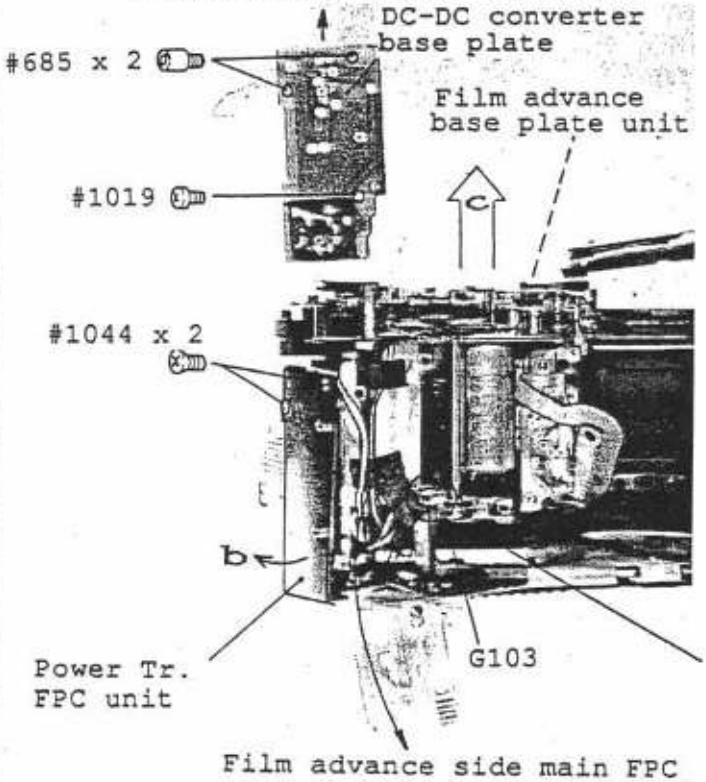
Remove the film advance side main FPC as shown in the figure below.

Power Tr. FPC unit
#1044 x 2
Move aside the power Tr. FPC in the direction of arrow b.

DC-DC converter base plate
#685 x 2, #1019

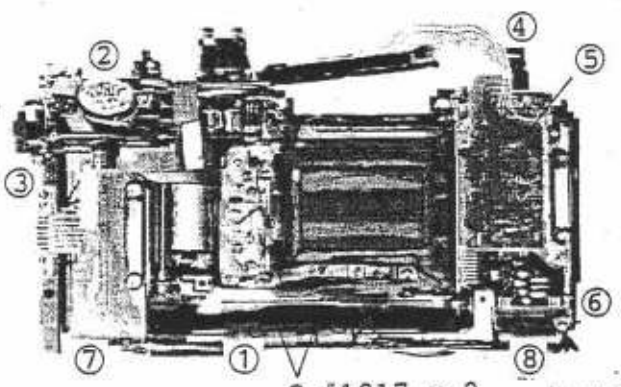
Film advance base plate unit
Peel adhesive of cables for shutter charge (MM) motor.

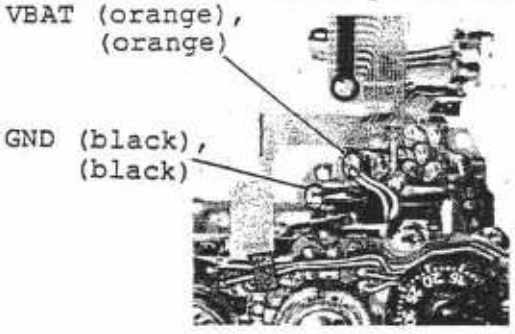
Set up the film advance base plate in the direction indicated by the arrow (c).



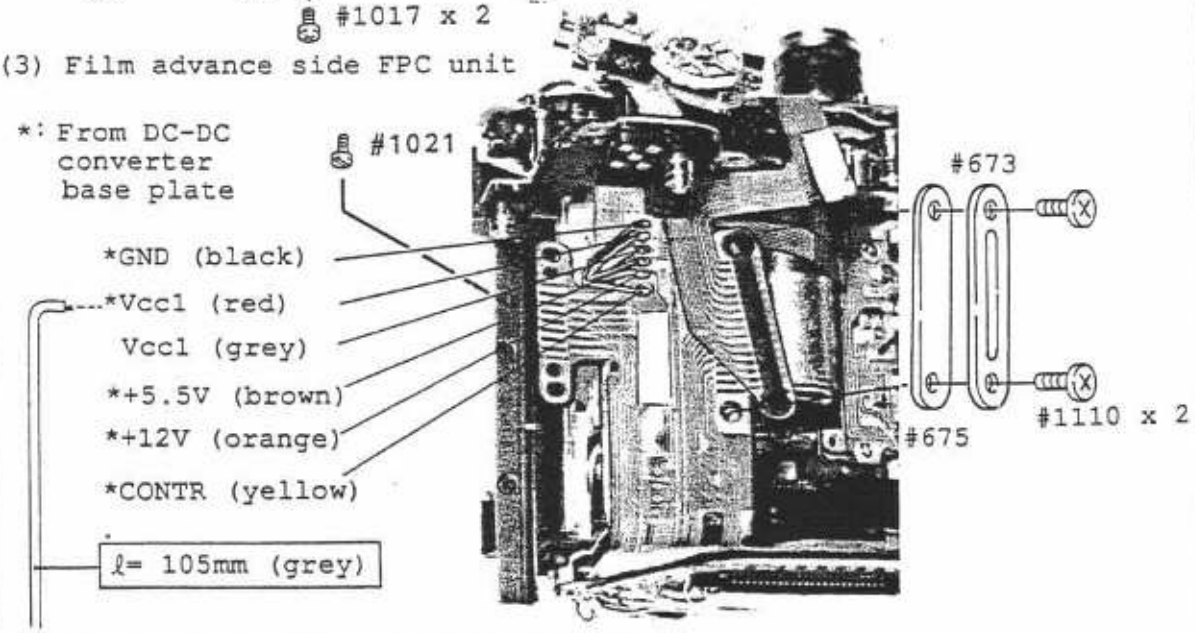
Main FPC (□: junction cable)

(2) Power supply base plate unit

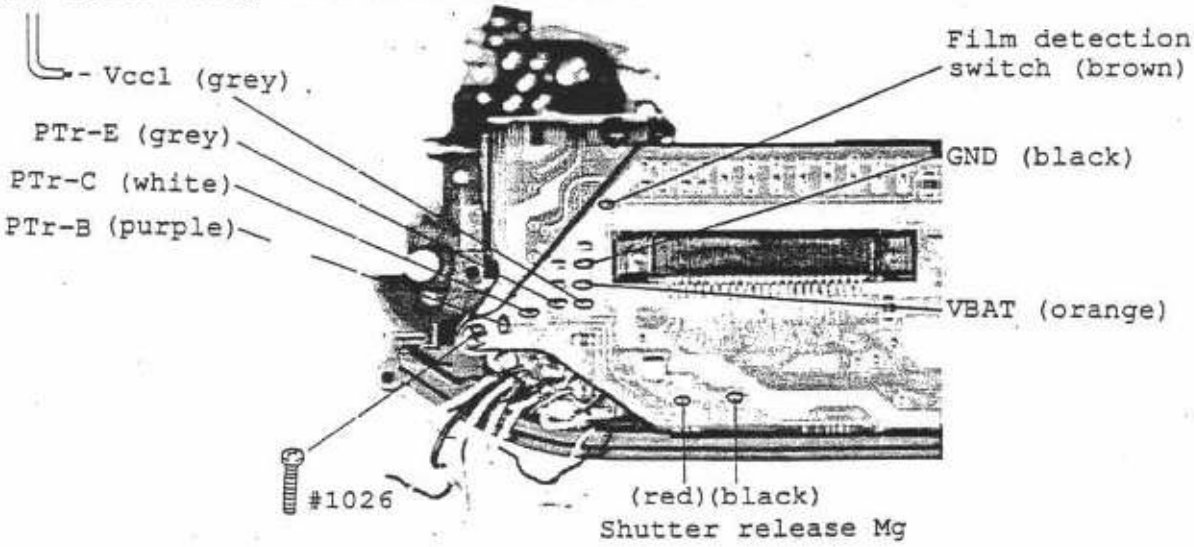




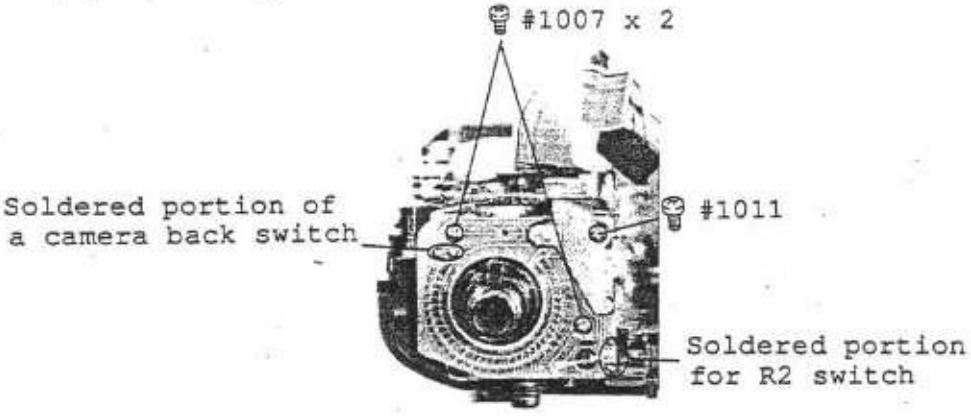
(3) Film advance side FPC unit



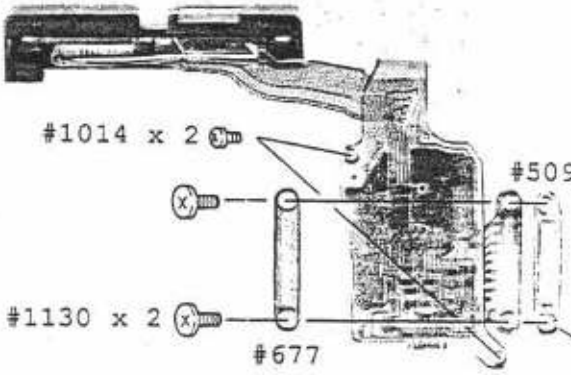
(7) Bottom body film advance side FPC



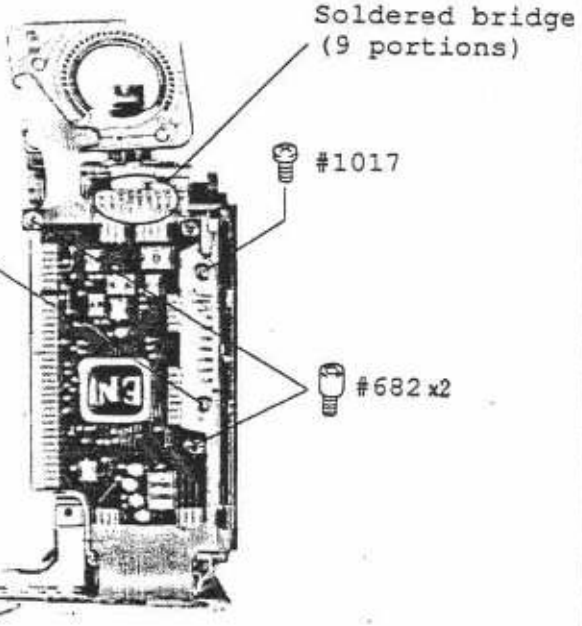
(4) ISO film speed base plate unit



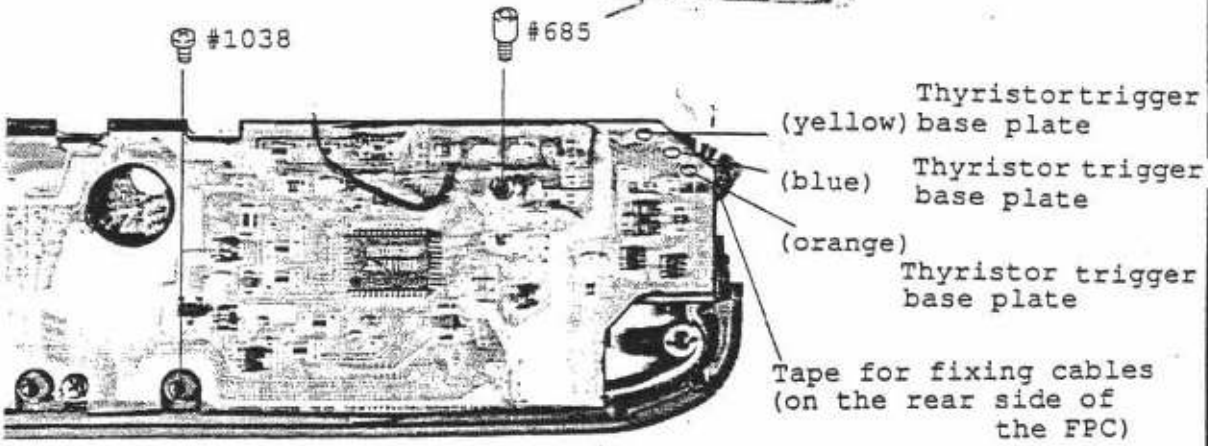
(5) Display FPC unit



(6) Film rewind side FPC unit

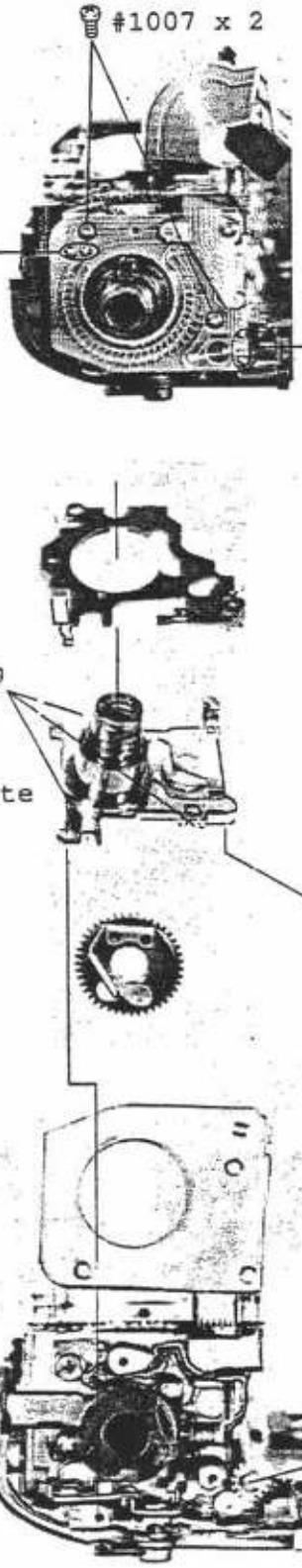


(8) Bottom body film rewind side FPC



Film rewind unit

(It is possible to disassemble the film rewind unit by removing the display block instead of removing the front body.)


#1007 x 2
Soldered portion for camera back switch
Soldered portion for R2 switch
Film rewind mold base plate
#1113 x 3
Film rewind base plate
Fork gear

ISO film speed base plate
Soldered portion x 2
#1007 x 2

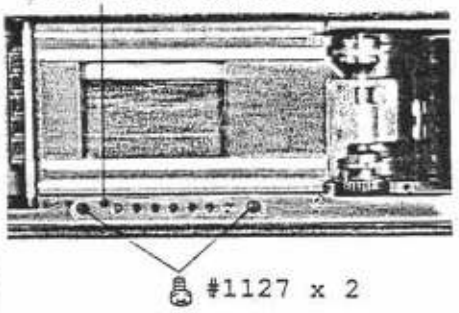
Film rewind mold base plate

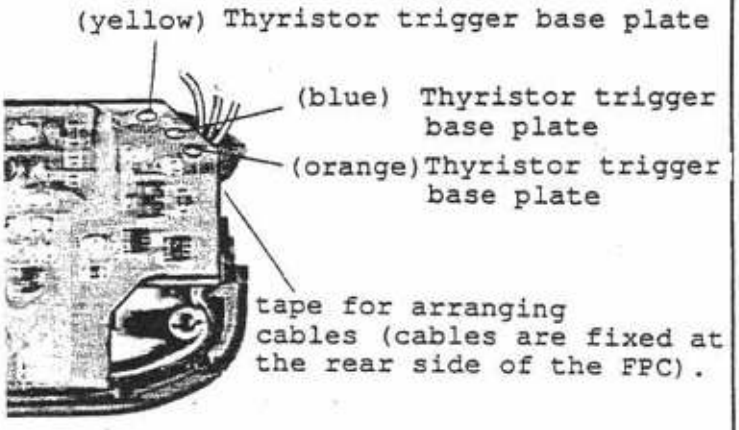
Film rewind base plate
#1113 x 3

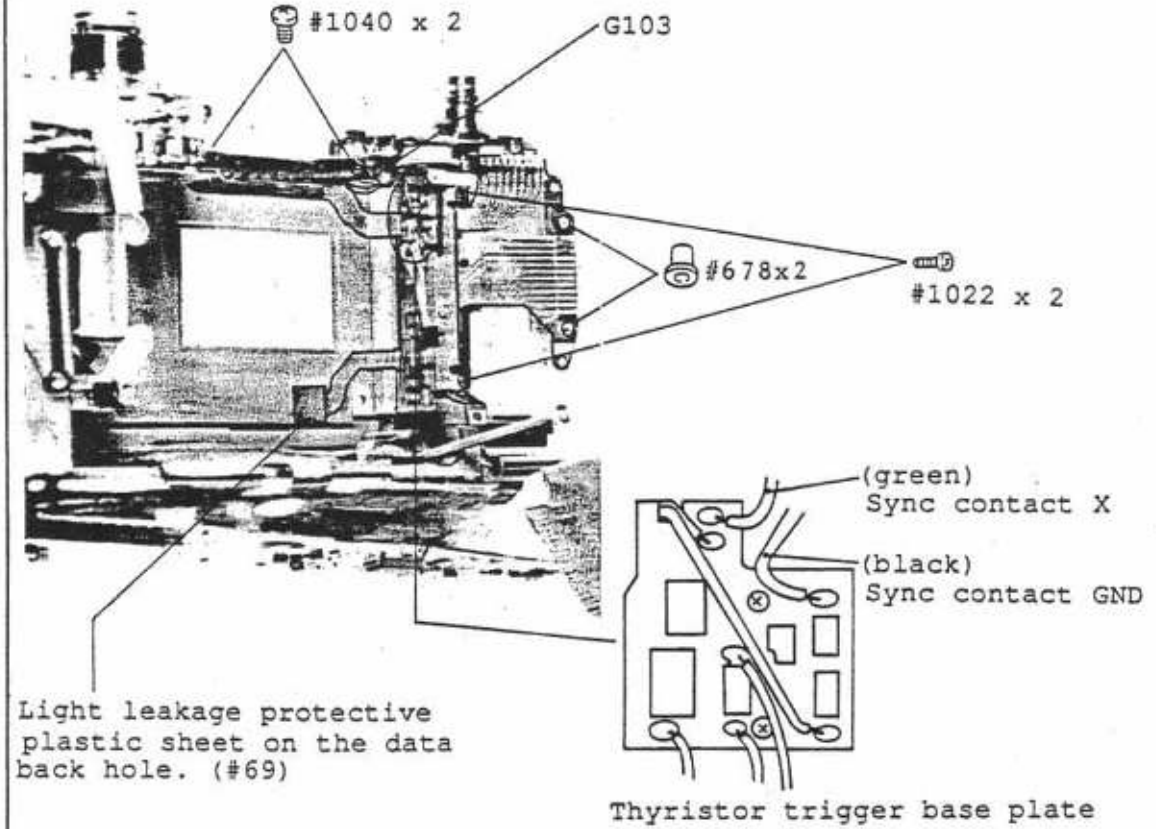
Fork gear

FD, DB, and DX FPC units

1. Remove shutter (See page D6)
2. Remove display FPC unit, film rewind side FPC unit (See page D11)
3. Remove following screws and cables.

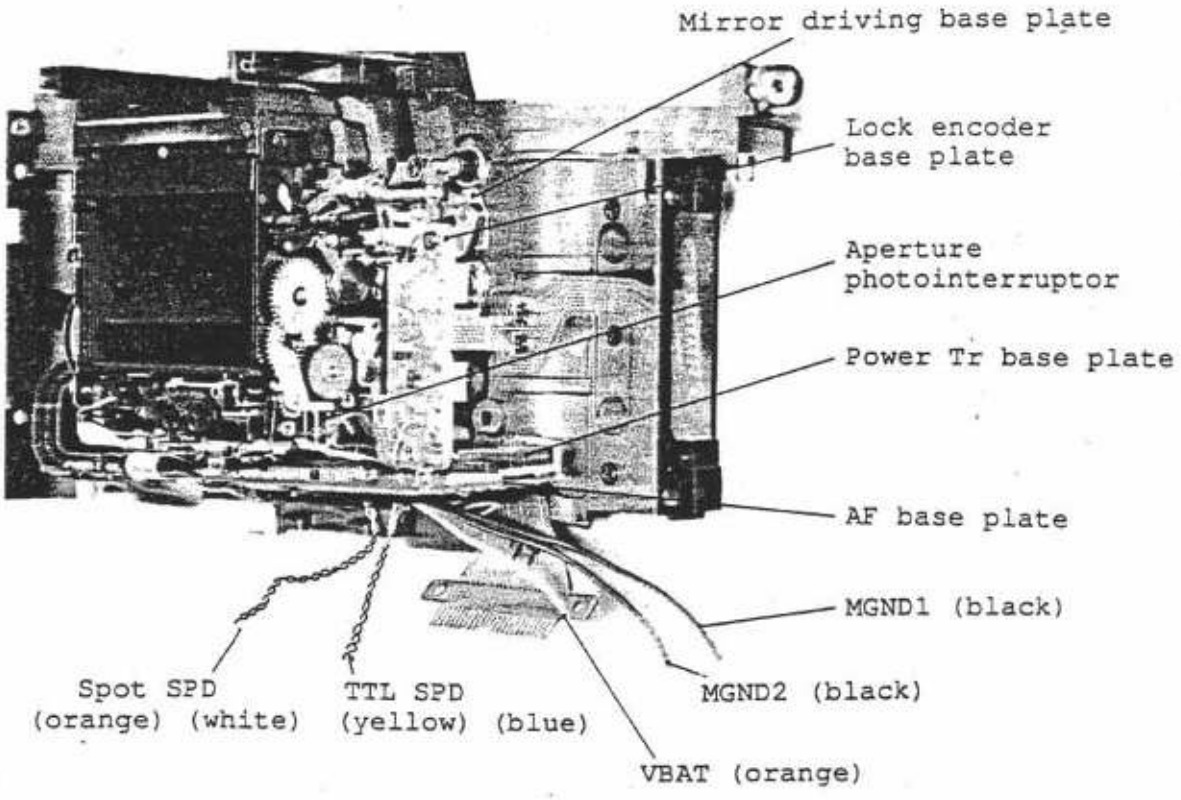


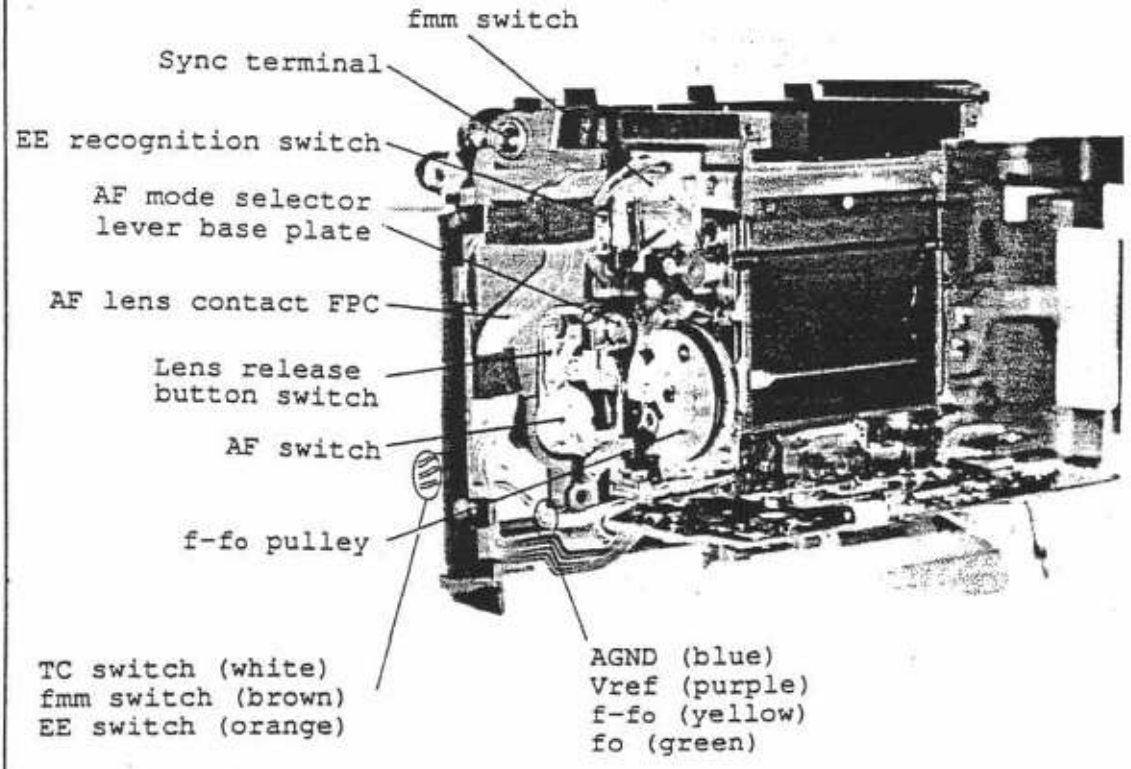

(yellow) Thyristor trigger base plate
(blue) Thyristor trigger base plate
(orange) Thyristor trigger base plate
tape for arranging cables (cables are fixed at the rear side of the FPC).



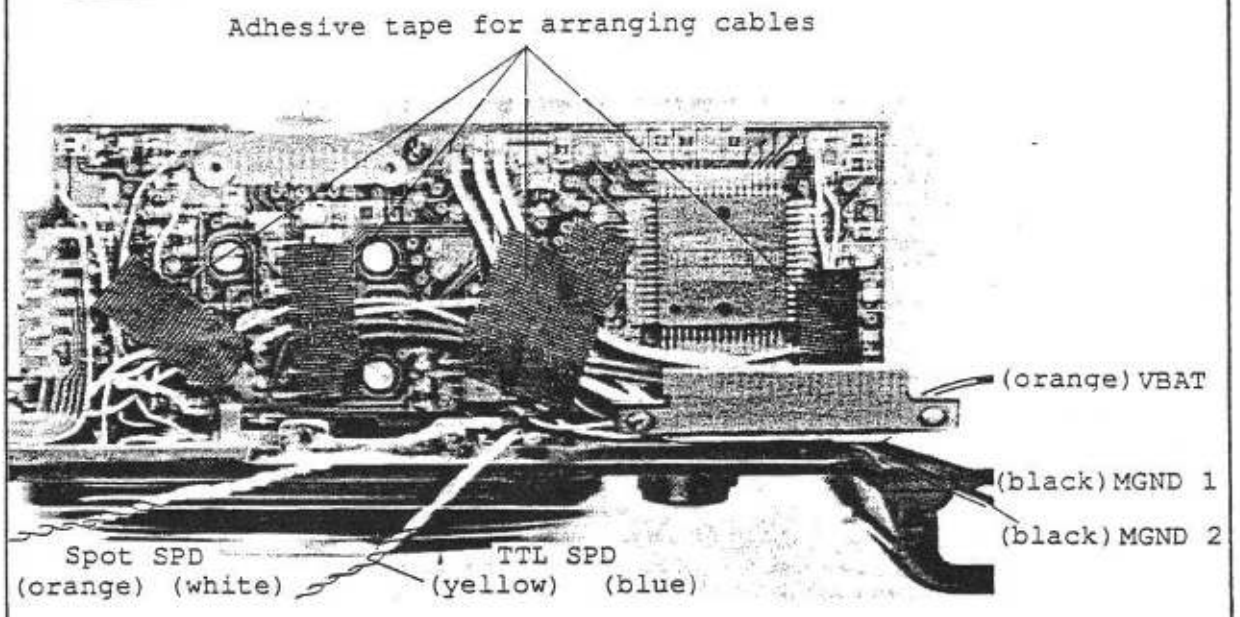
Front body

Overview of the front body



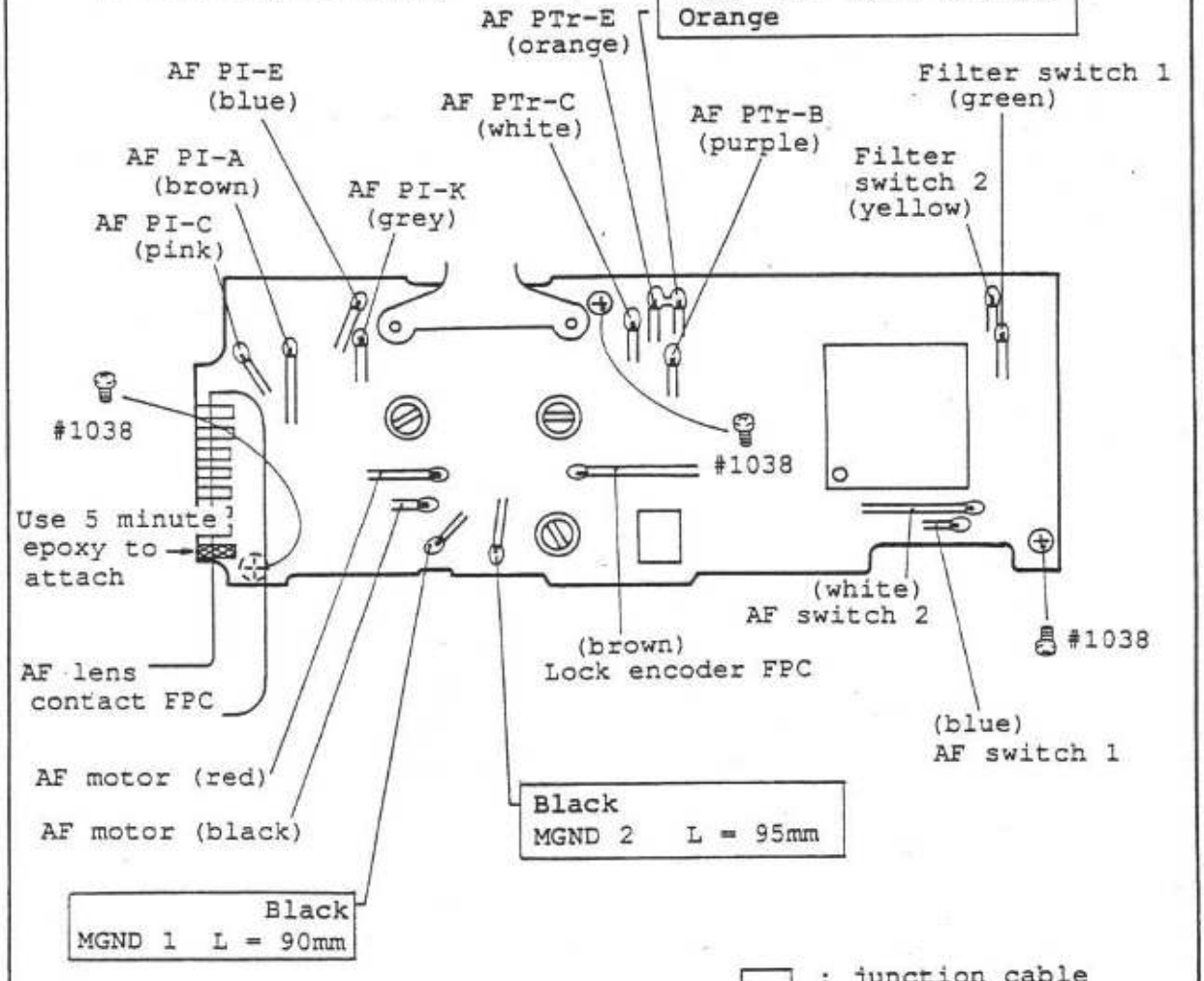


AF base plate



—— Cable, remove AF base plate screw (See the figure below)

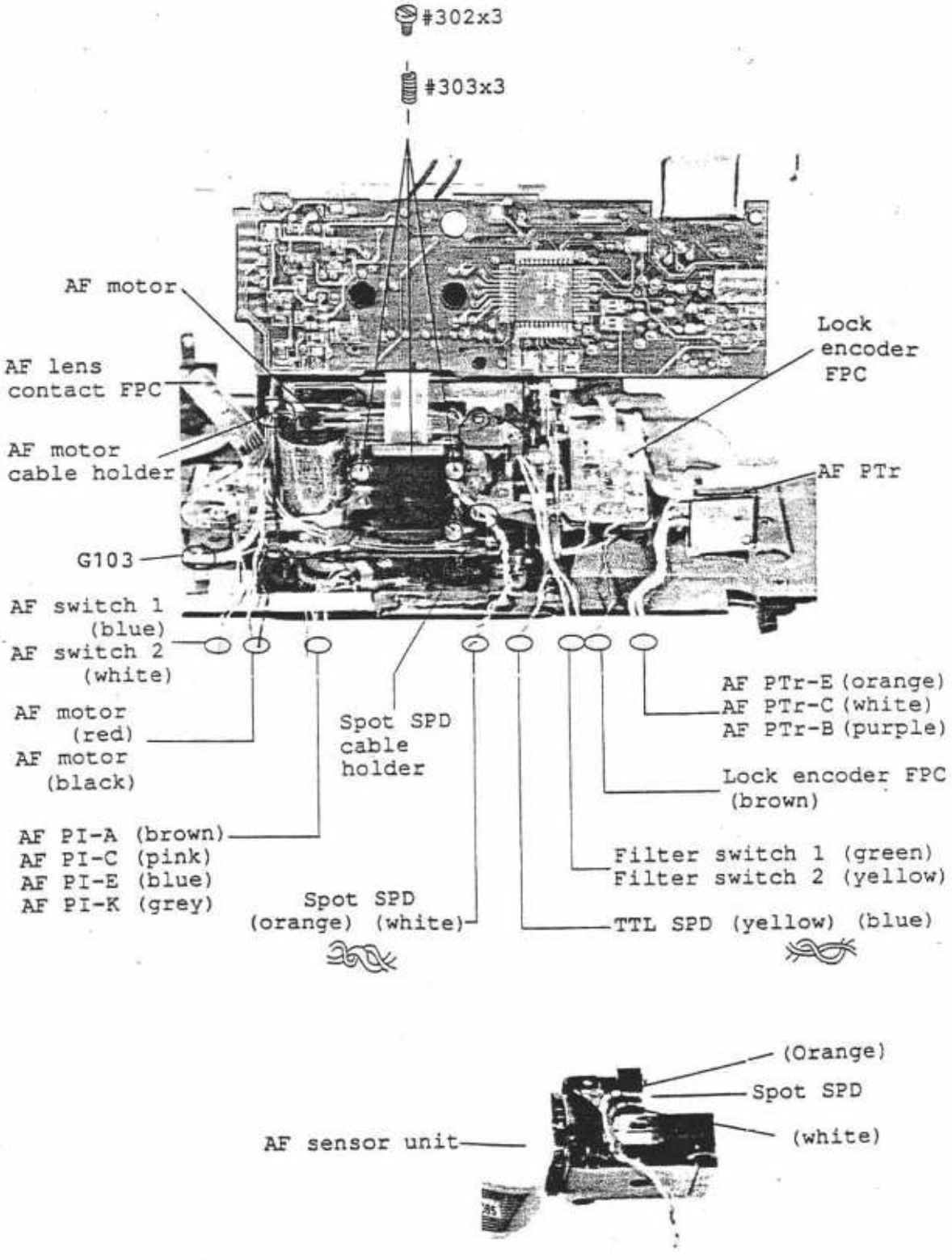
VBAT L = 90mm (orange)
Orange



Black
MGND 2 L = 95mm

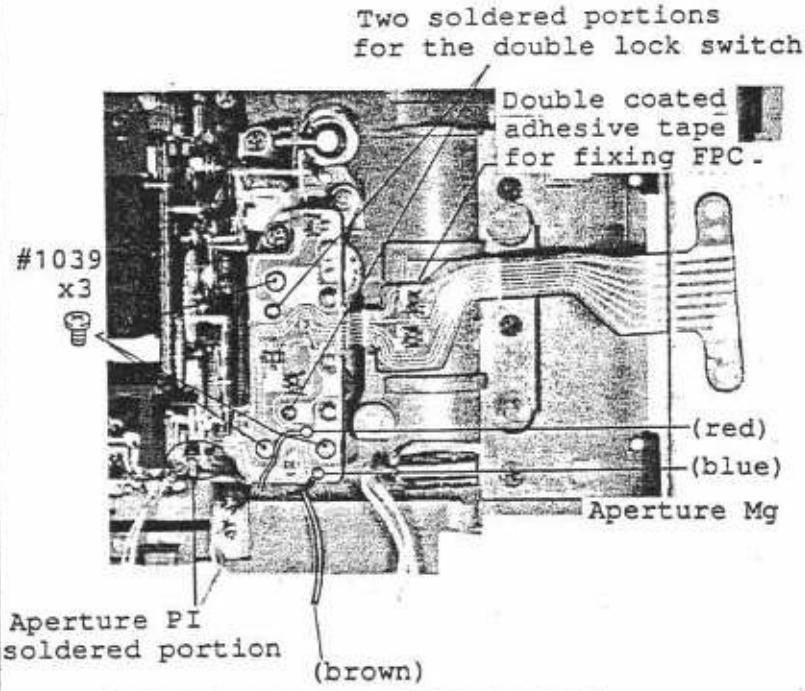
Black
MGND 1 L = 90mm

▭ : junction cable
AF PI = AF photointerruptor


#302x3
#303x3
AF motor
AF lens contact FPC
AF motor cable holder
G103
AF switch 1 (blue)
AF switch 2 (white)
AF motor (red)
AF motor (black)
AF PI-A (brown)
AF PI-C (pink)
AF PI-E (blue)
AF PI-K (grey)
Spot SPD cable holder
Spot SPD (orange) (white)
Lock encoder FPC
AF PTr
AF PTr-E (orange)
AF PTr-C (white)
AF PTr-B (purple)
Lock encoder FPC (brown)
Filter switch 1 (green)
Filter switch 2 (yellow)
TTL SPD (yellow) (blue)
(Orange)
Spot SPD
(white)
AF sensor unit

Lock encoder FPC unit

Aperture PI = Aperture photointerruptor



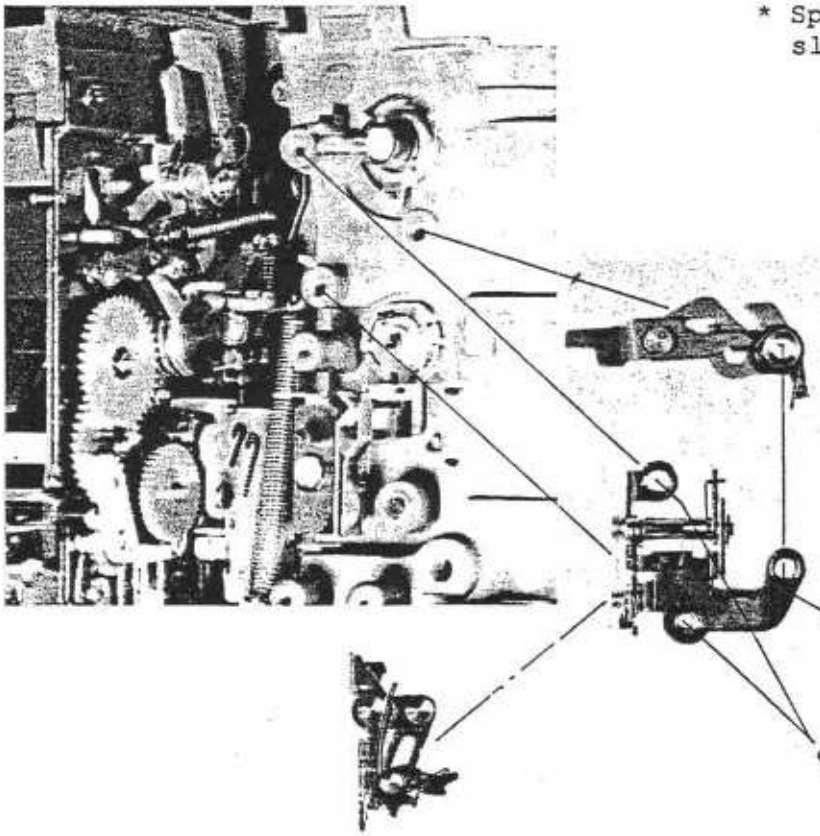
Remove cables
Aperture Mg (red)
(blue)

Remove two soldered portions for the double lock switch

Remove soldered portion for the aperture PI.

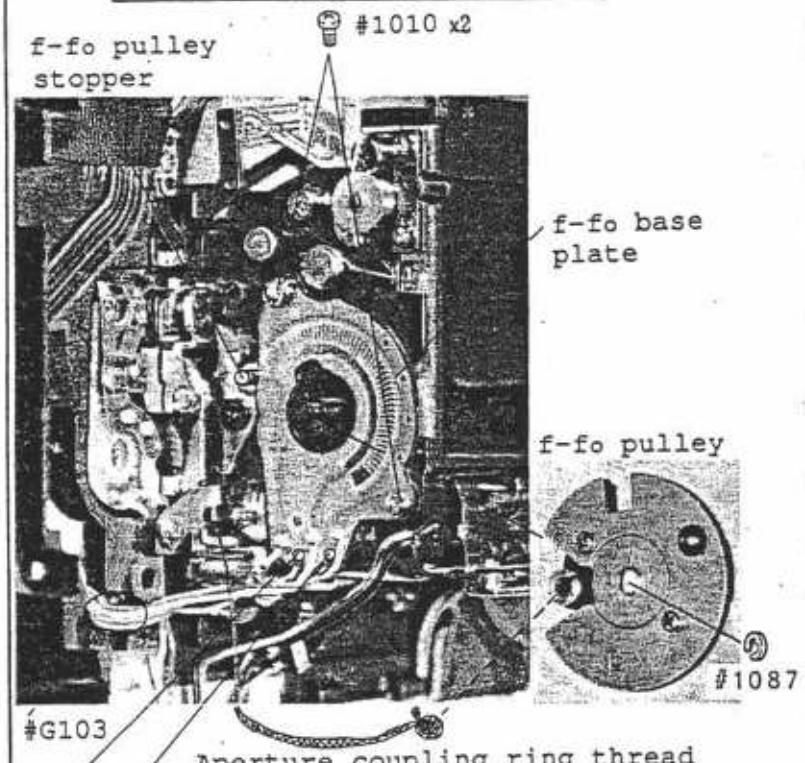
#1039 x 3

Mirror operating base plate



* Spread G7100 on each sliding portion.

f-fo pulley, f-fo base plate



f-fo pulley #1087

(Be sure not to damage the f-fo pulley shaft when mounting and dismounting #1087)

Remove aperture coupling ring thread (Note: Attach with adhesive or Alon Alfa)

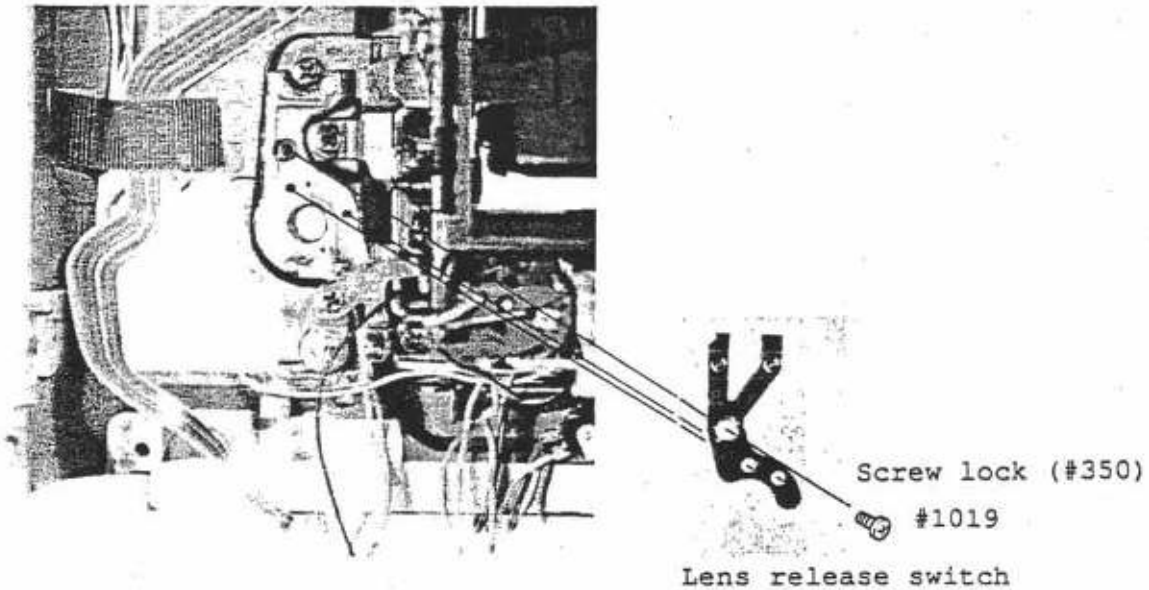
Remove cables

AGND -- fo base plate (blue)
Vref -- fo base plate (purple)

f-fo base plate #1010

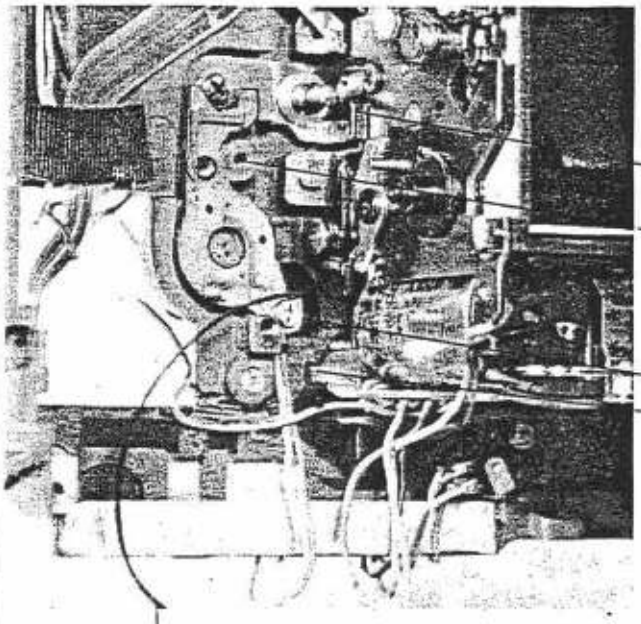
Attached on the front body with G103 (blue),(yellow),(purple)

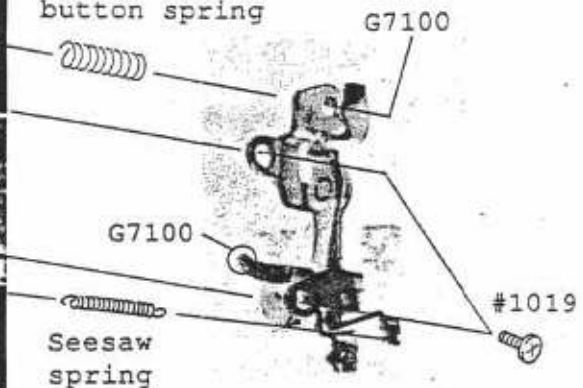
Lens release switch



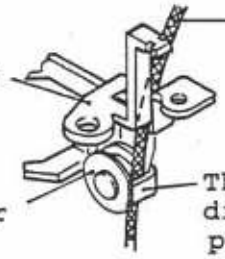
AF mode selector lever base plate unit

Remove AF mode selector lever base plate unit, after setting AF mode in other than M



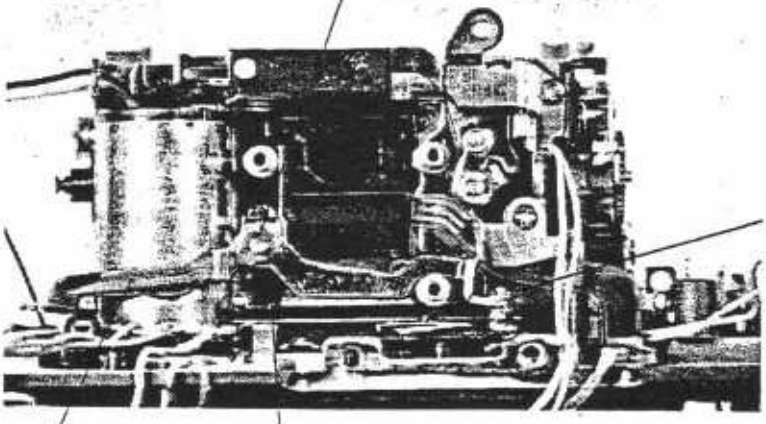


Aperture coupling ring thread



Seesaw lever

Apply G7100 on the seesaw lever shaft



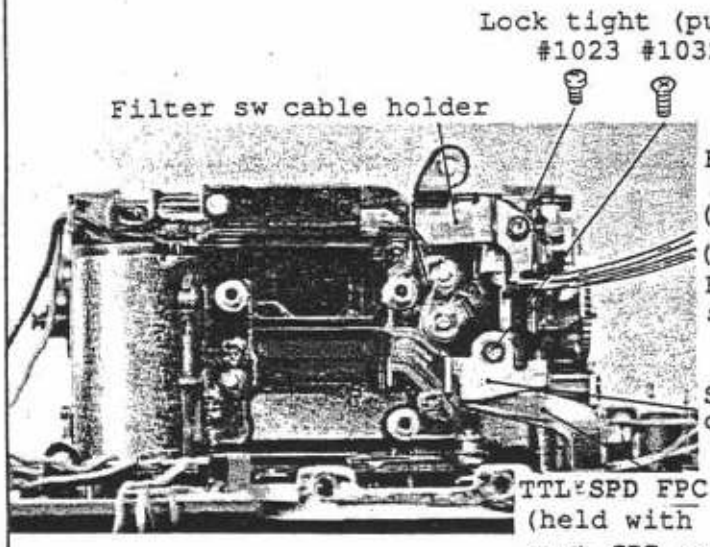
This is latched to the AF coupling shaft.

G7100

Seesaw lever

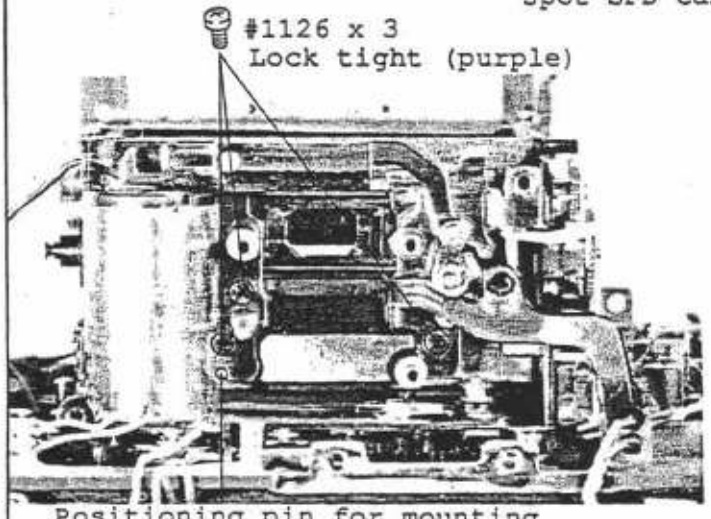
#1087

Filter driving base plate unit, filter unit, TTL SPD unit

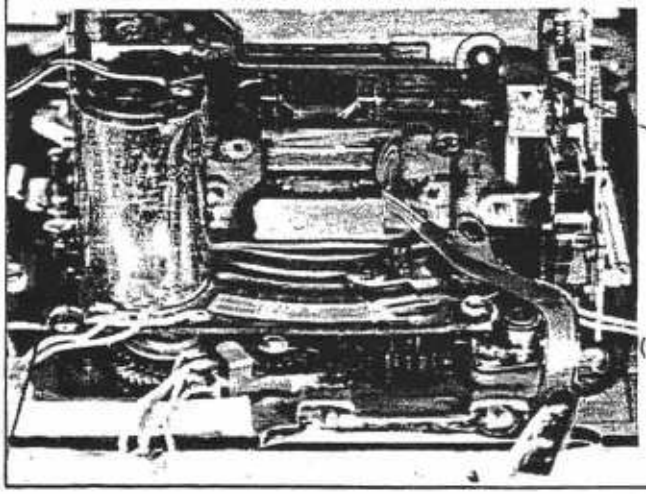


Filter switch cable holder #1023

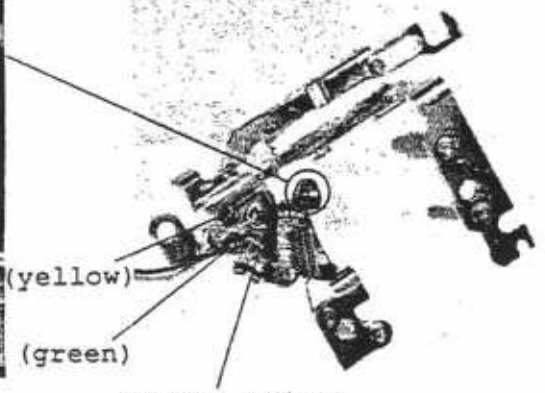
Spot SPD cable holder #1032

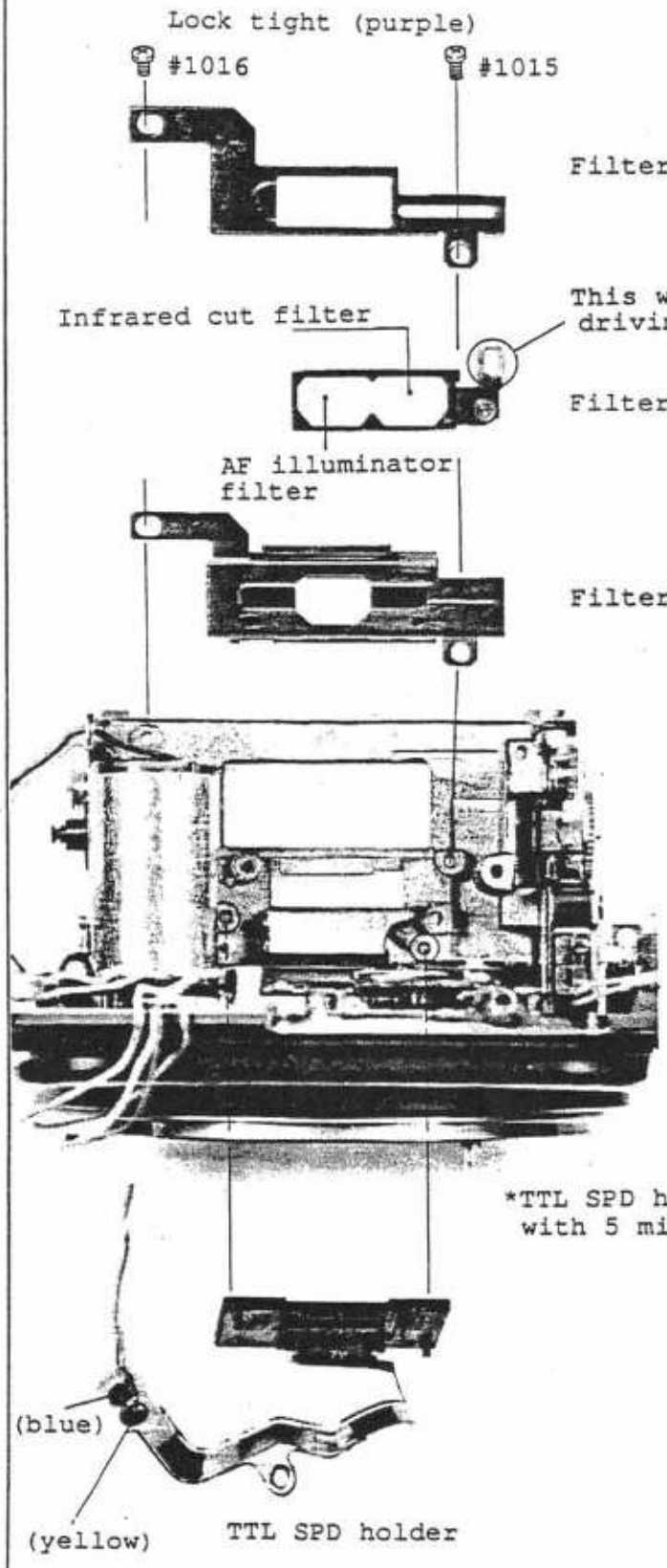


Filter driving base plate #1126 x 3



Latched portion of filter driving base plate unit and filter unit





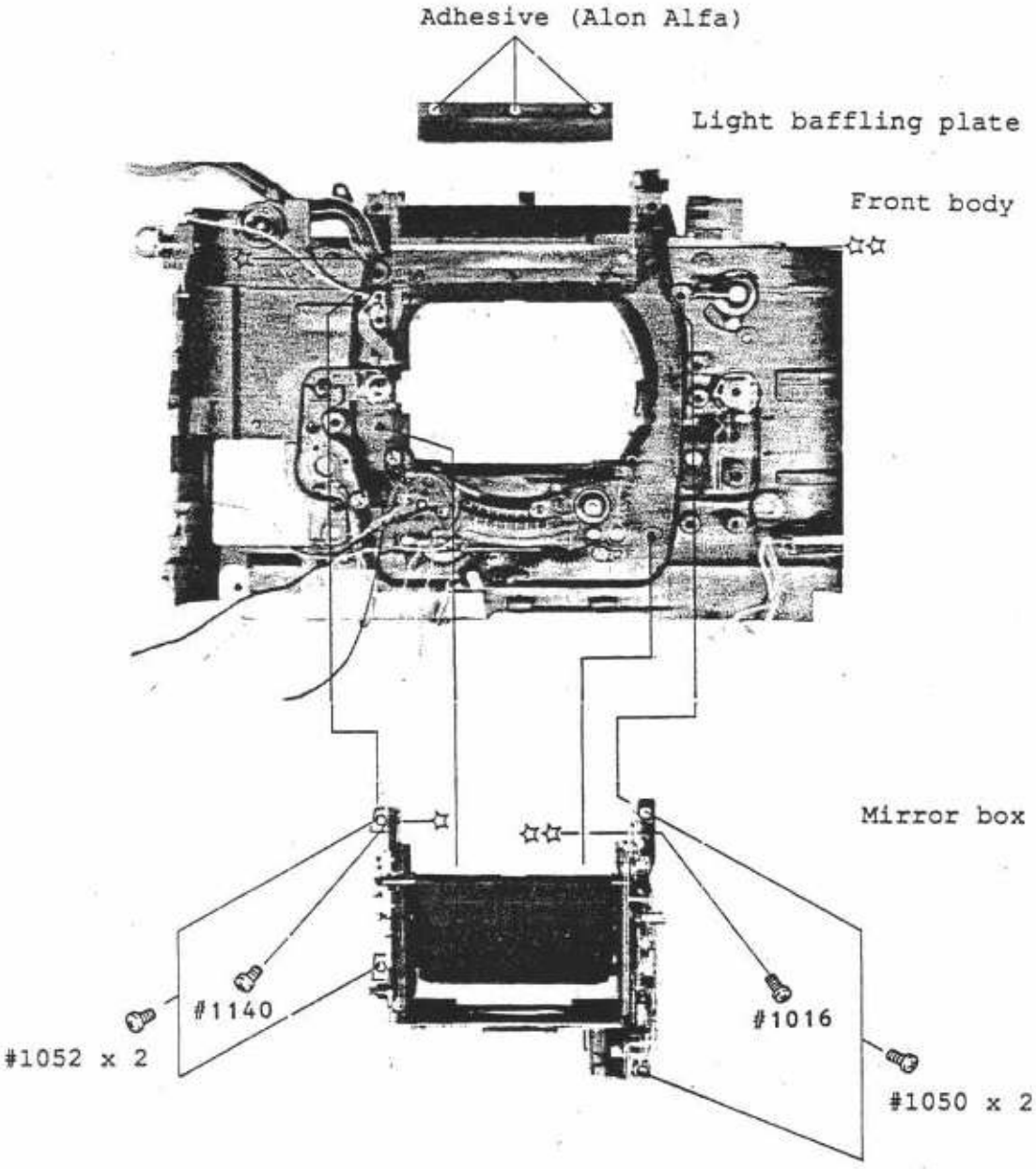
Note:

Inspection after mounting filter unit:

Filter holder will slide by its own weight when the front body is declined.

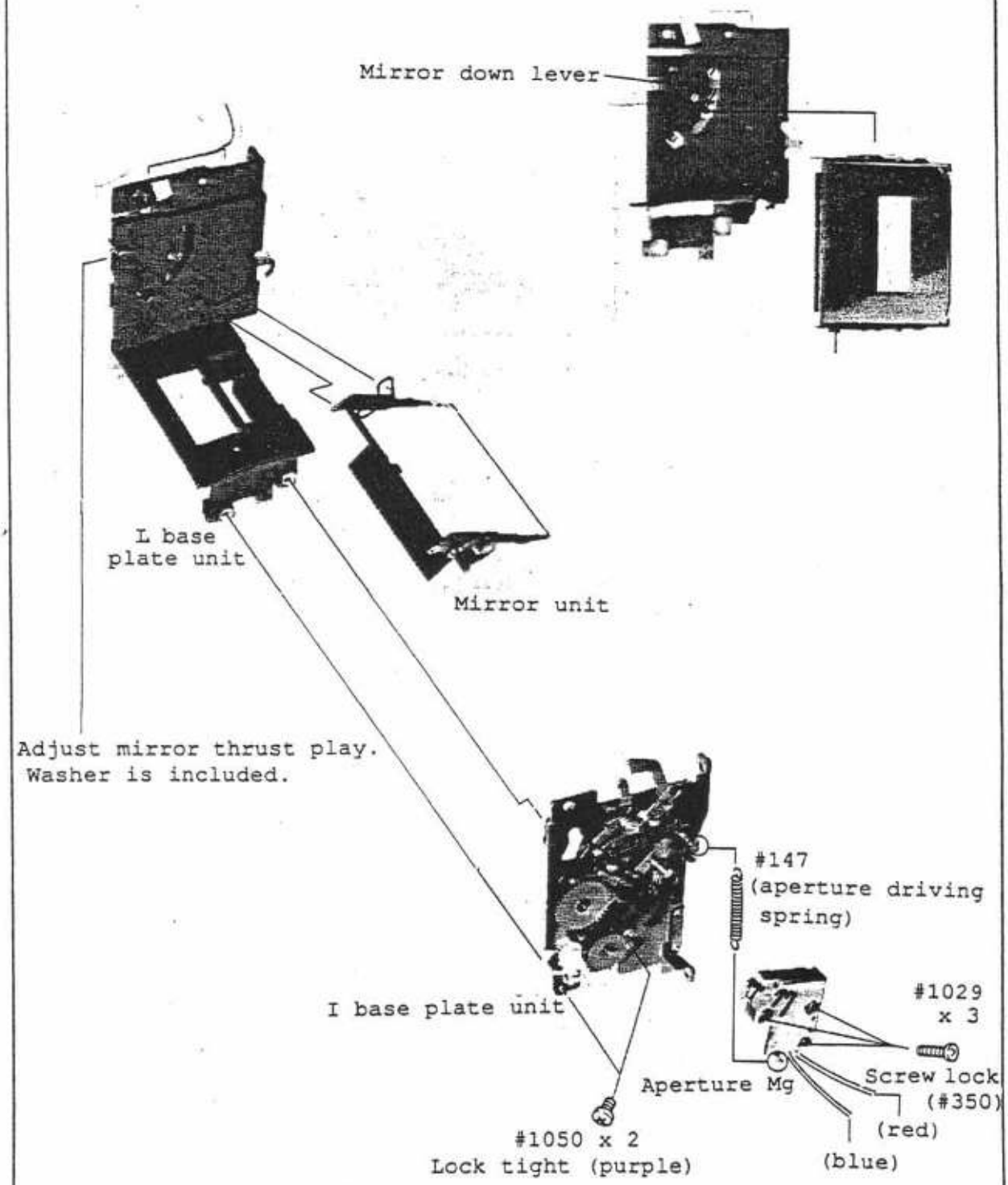
*TTL SPD holder is attached with 5 minute epoxy.

Removing mirror box

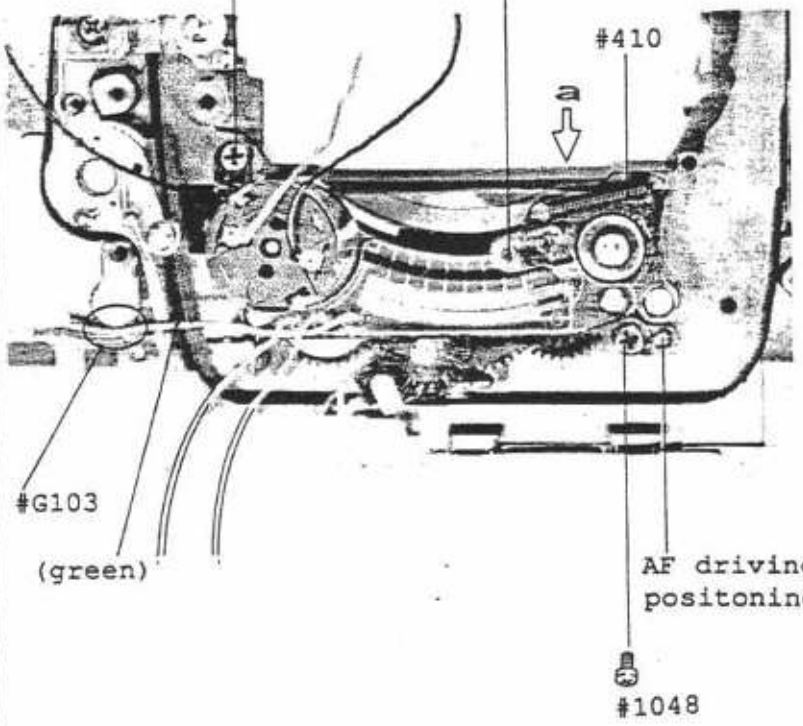


Note: Move aside the mirror box toward viewfinder side when mounting.

Aperture Mg, mirror unit, I base plate, L base plate unit



AF driving base plate unit, fo base plate



Remove adhesive of green cable

Remove fo lever spring (#410)

Remove mounting screw #1048 x 2

Remove AF drivng base plate and f_0 lever together without bending the f_0 brush.

Set the f_0 lever at the location indicated by arrow a.

ASSEMBLING & ADJUSTMENT

Contents

Assembling, back body

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Film rewind unit ---------- A11
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Assembling, front body

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Mounting of front body and back body

Mounting of front body and back body ---------- A45
Adjustment of film sprocket cogwheel positioning ---------- A48
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Adjustment of infinity ---------- A49
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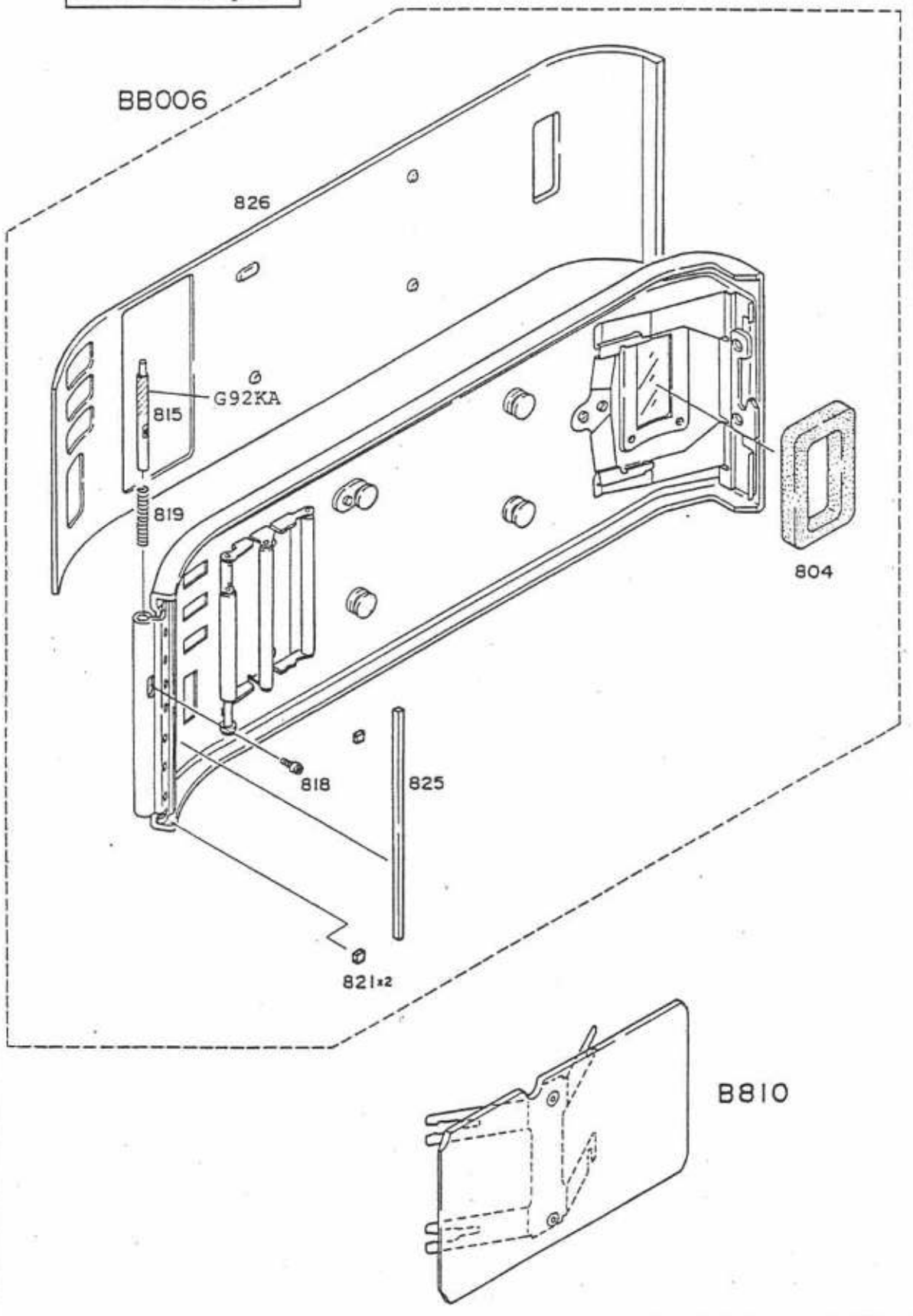
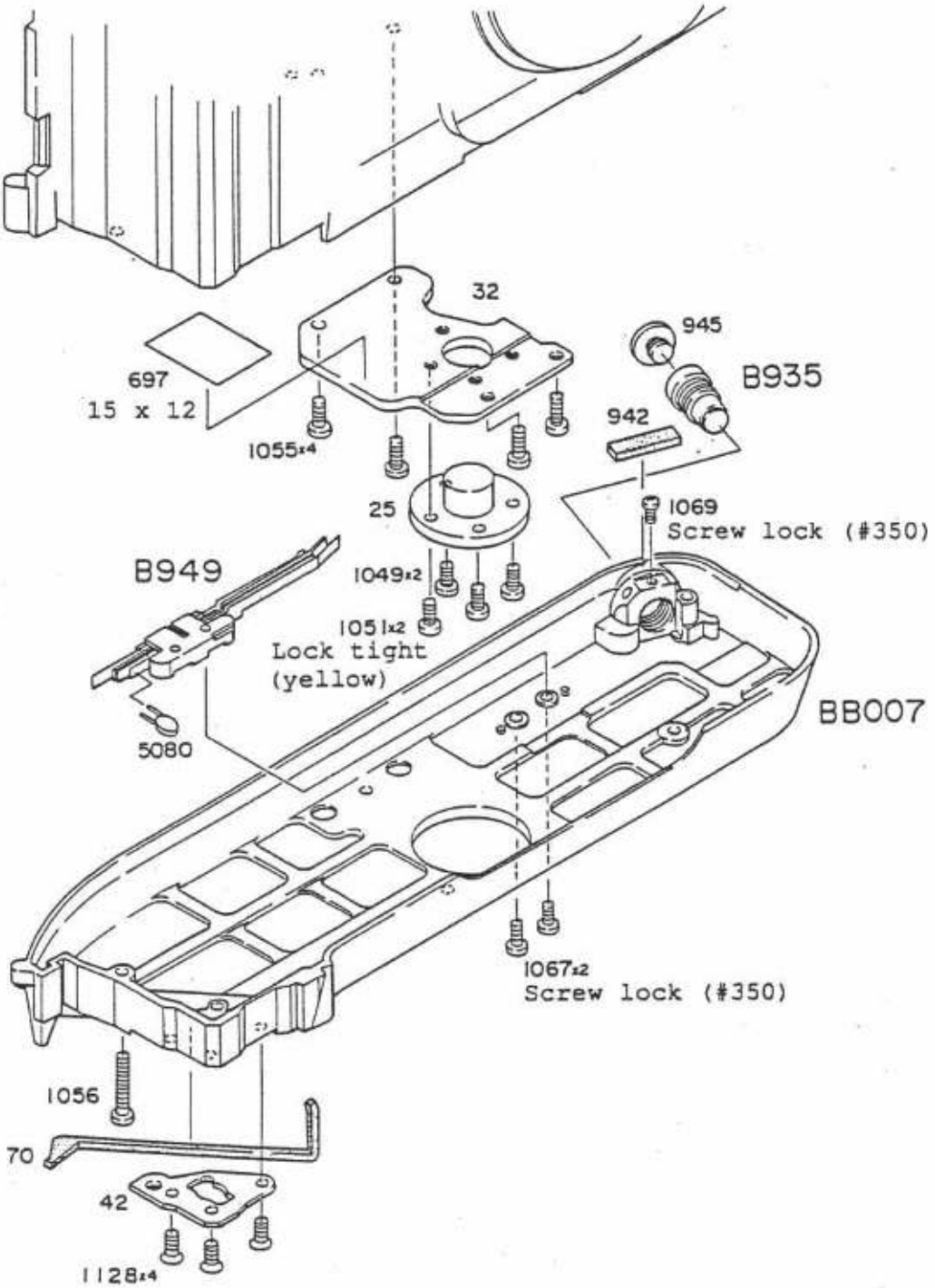
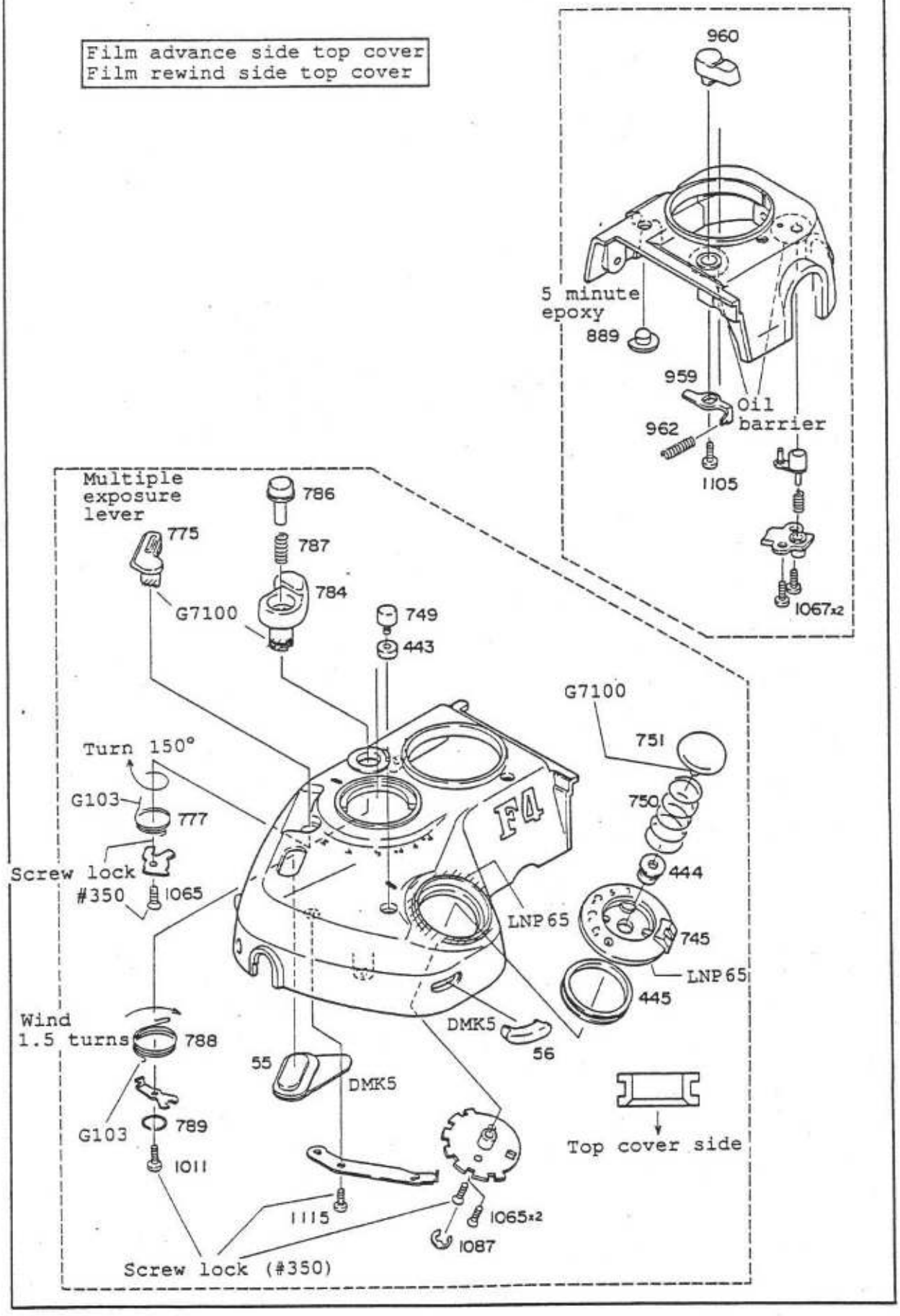
Camera back parts



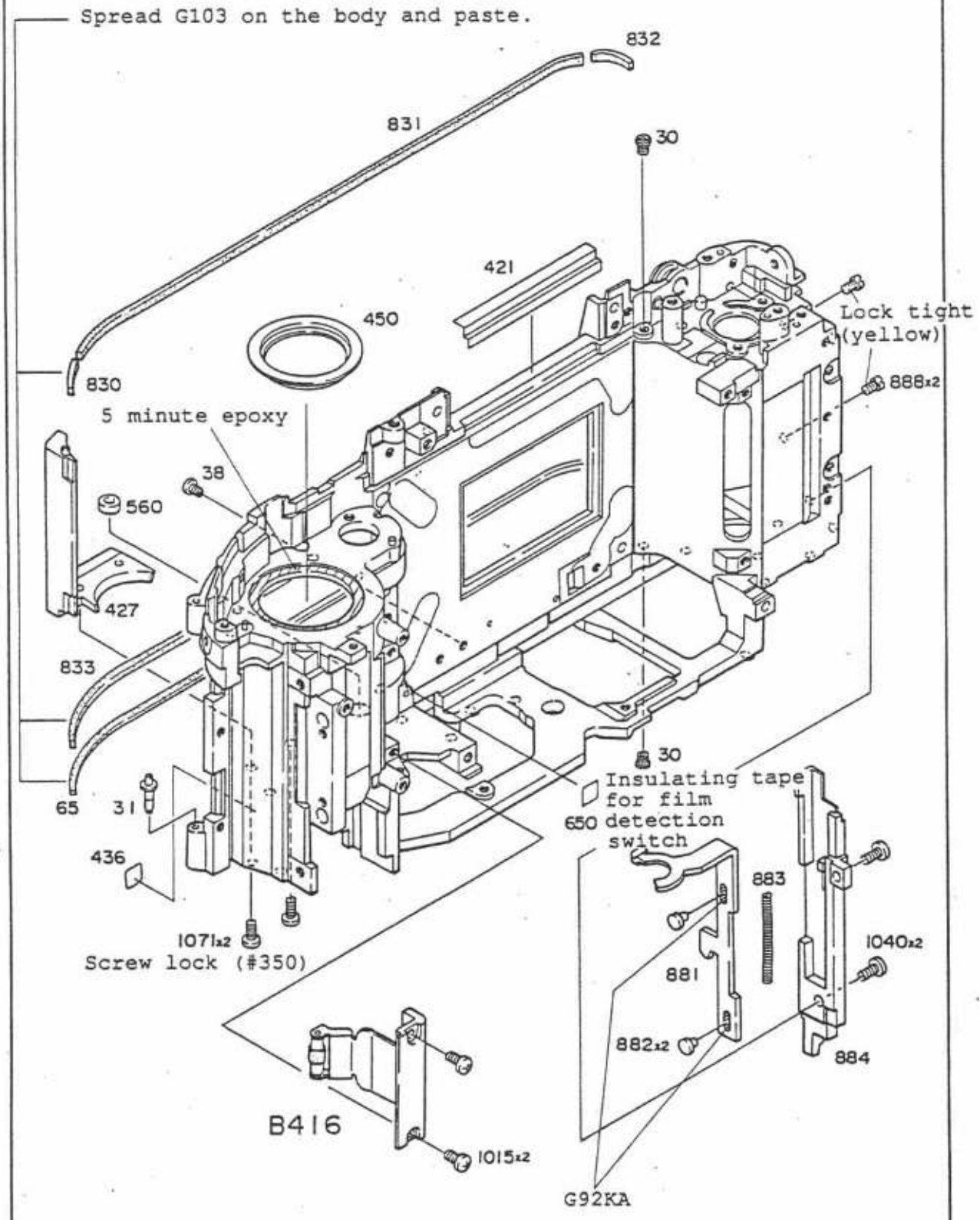
Bottom cover and tripod parts

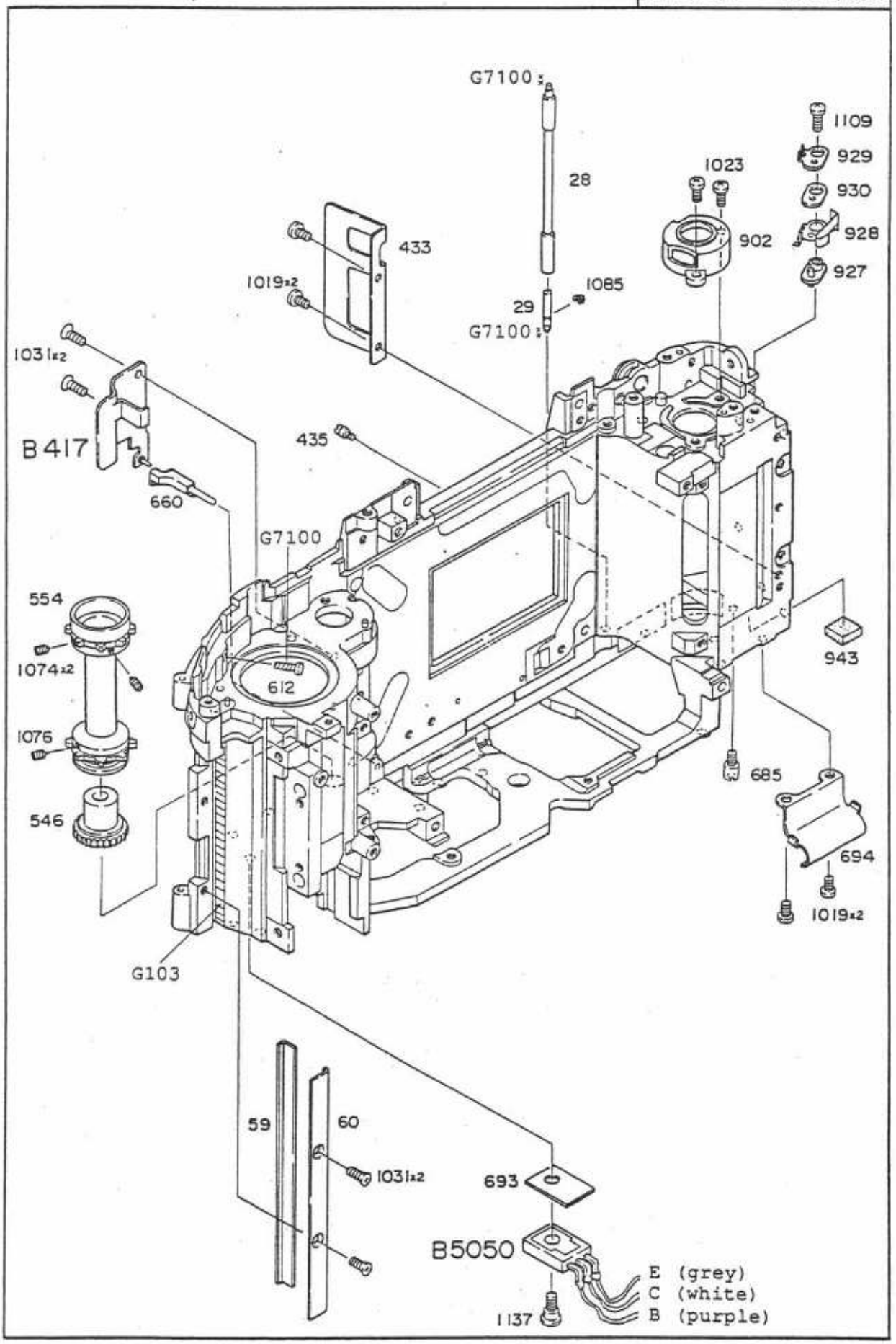


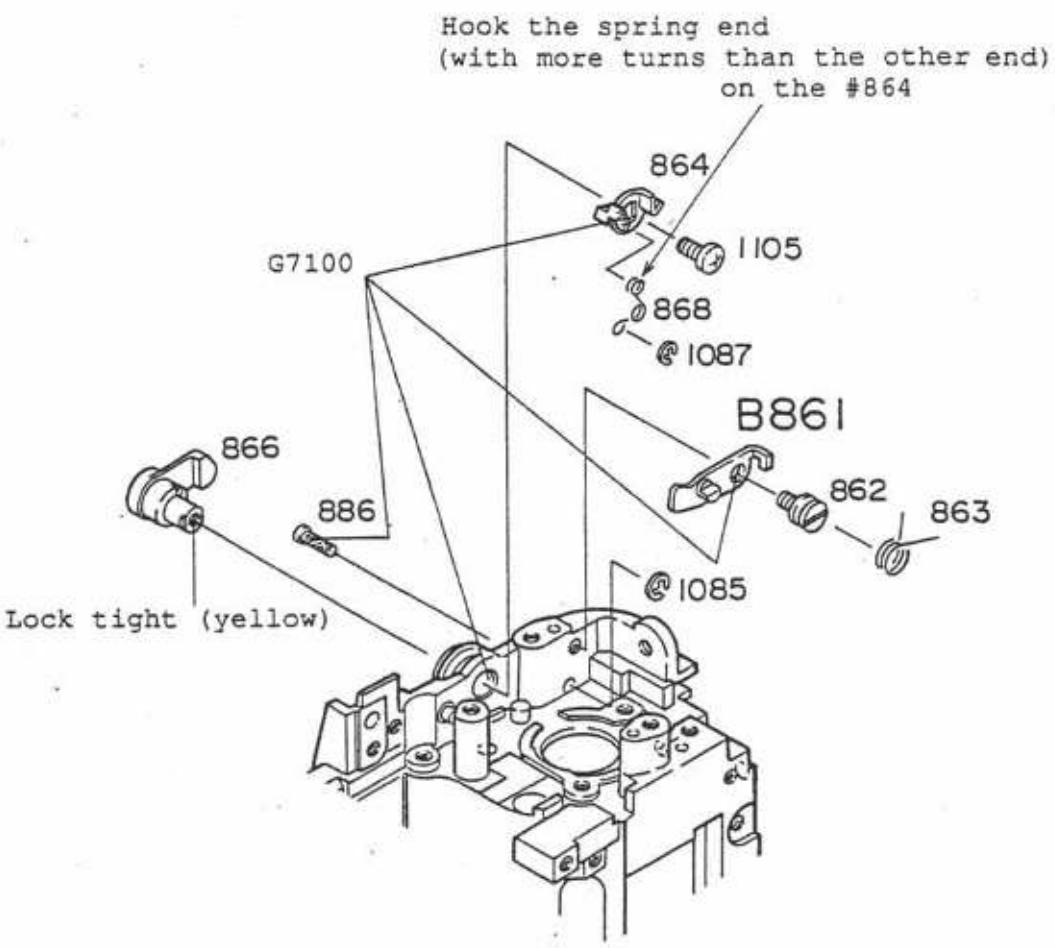
Film advance side top cover
Film rewind side top cover

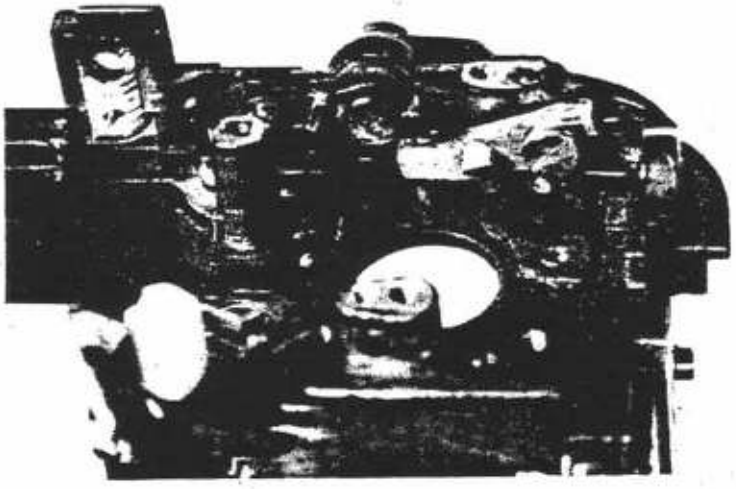


Back body parts



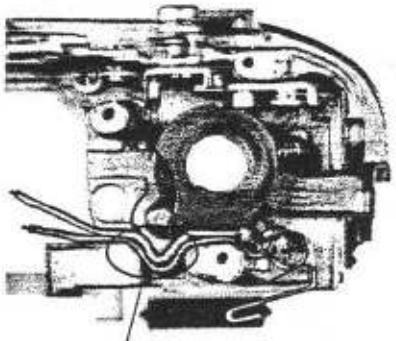

G7100
28
1109
929
930
928
927
1023
902
433
1019x2
1085
29
G7100
1031x2
B417
435
660
G7100
554
1074x2
612
1076
546
943
685
694
1019x2
G103
59
60
1031x2
693
B5050
E (grey)
C (white)
B (purple)
1137

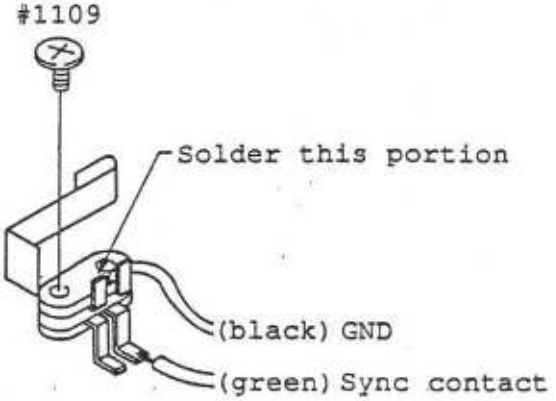

Hook the spring end
(with more turns than the other end)
on the #864
864
1105
G7100
868
1087
B861
866
862
863
886
1085
Lock tight (yellow)



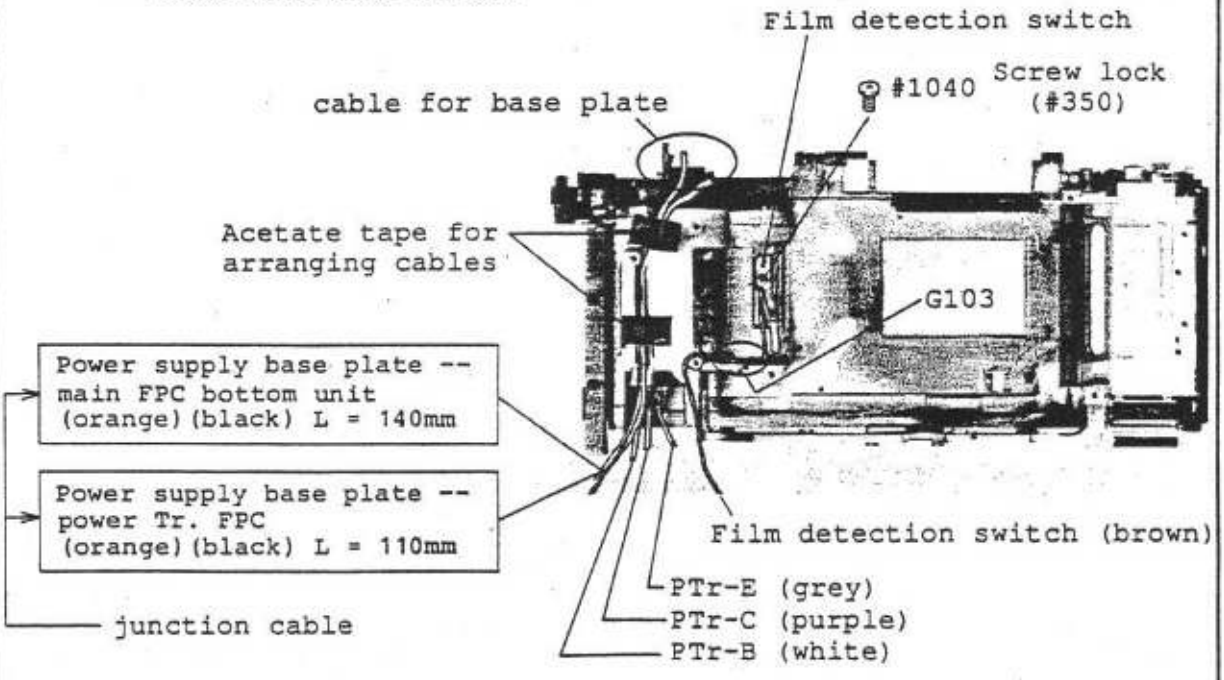
Sync contact, film detection switch

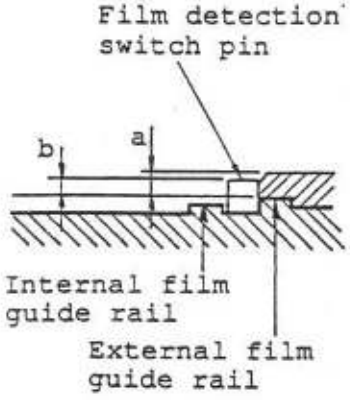
— Sync contact





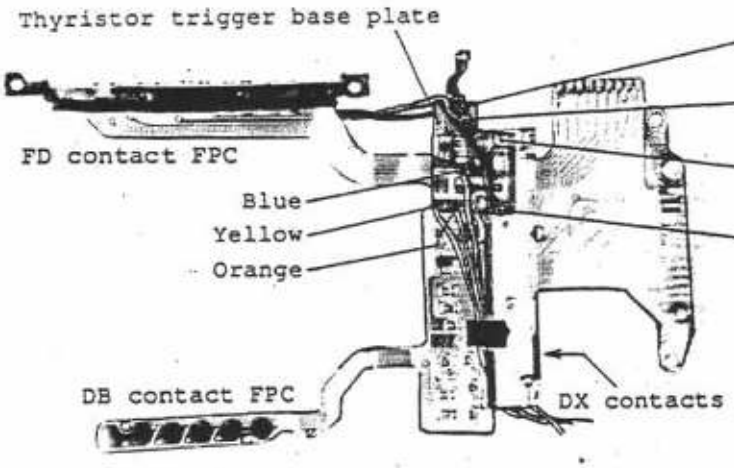
— Film detection switch


Film detection switch
cable for base plate
#1040
Screw lock (#350)
Acetate tape for arranging cables
G103
Power supply base plate -- main FPC bottom unit (orange) (black) L = 140mm
Power supply base plate -- power Tr. FPC (orange) (black) L = 110mm
junction cable
Film detection switch (brown)
PTr-E (grey)
PTr-C (purple)
PTr-B (white)



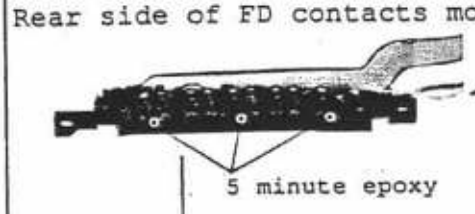
Check the ON-OFF position of the film detection switch based on the external film guide rail:
Height (or play); a = 1.13 ± 0.15
ON-OFF switching position; b = 1.00 or more
Total stroke; More than 0.1 deeper from the external film guide rail.

FD, DB, or DX FPC unit



Mount FD, DB, and DX FPCs

Spread a small amount of adhesive on the FD contact mold



#1022 x 2
#1040 x 2
678 x 2

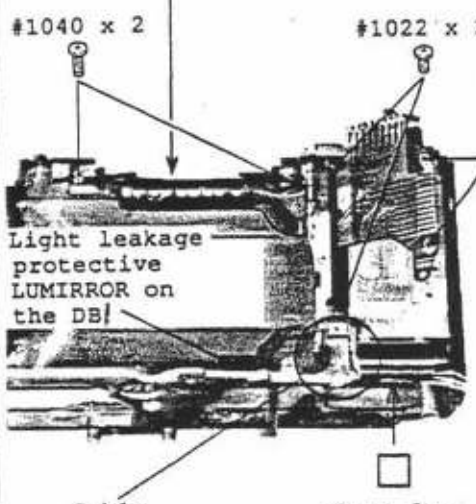
Place the DB contact FPC through the hole of the body

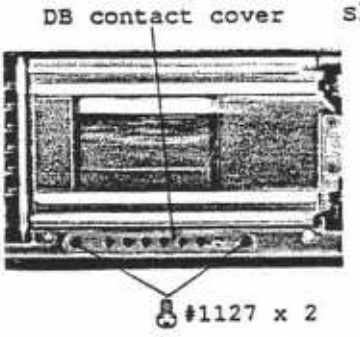
DB contact cover #1127x2

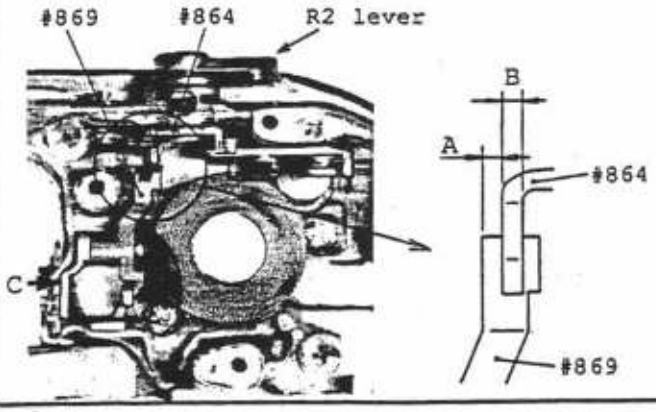
Attach light leakage protective plastic sheet on the DB

Solder cables

Arrange cables





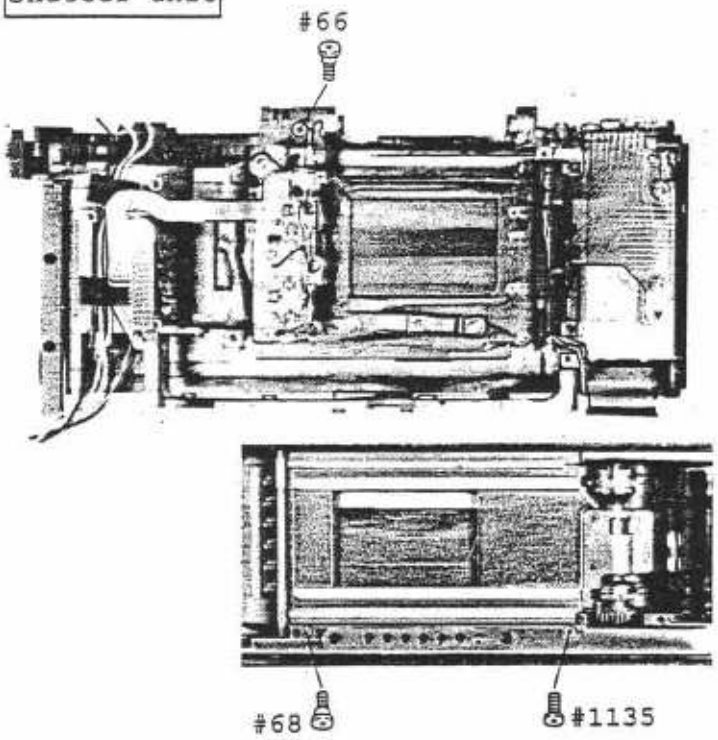


Check the latching condition of the R2 lever

The latching amount of the #864 and #869 when the R2 lever is in locked state;
A ≒ B (approx. 0.7)

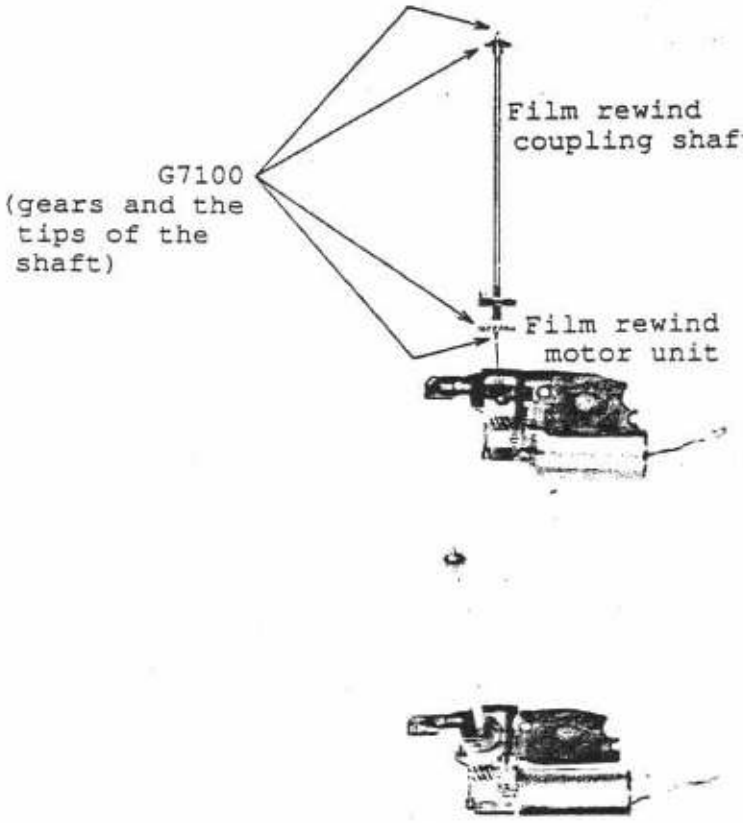
Adjust by bending part C indicated by the arrow in the figure at left.

Shutter unit

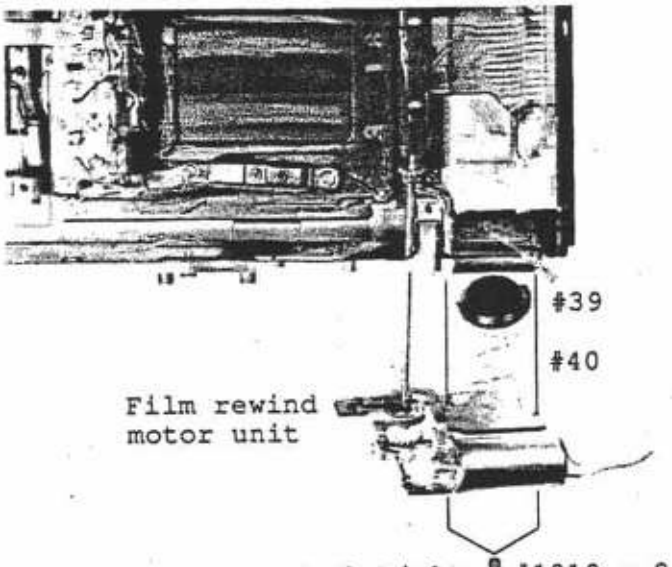


Shutter unit
#66
#68
#1135

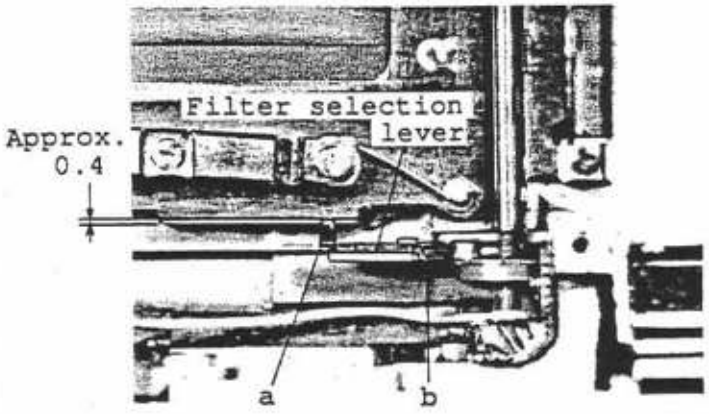
Film rewind motor unit



Mount a film rewind coupling shaft in the film rewind motor unit.



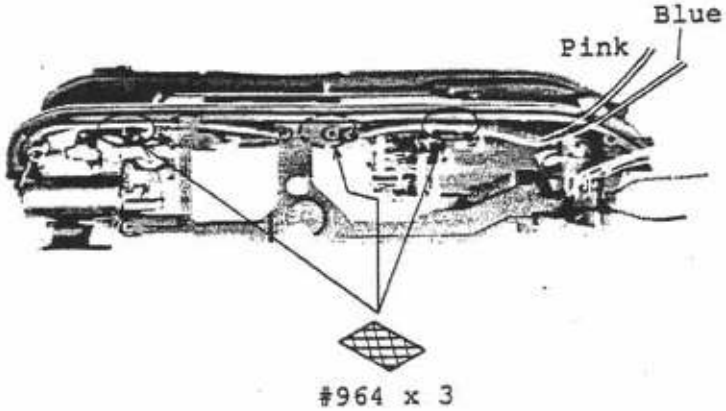
Mount a film rewind motor unit
#39
#40
#1019 x 2



Check the position of the filter selection lever

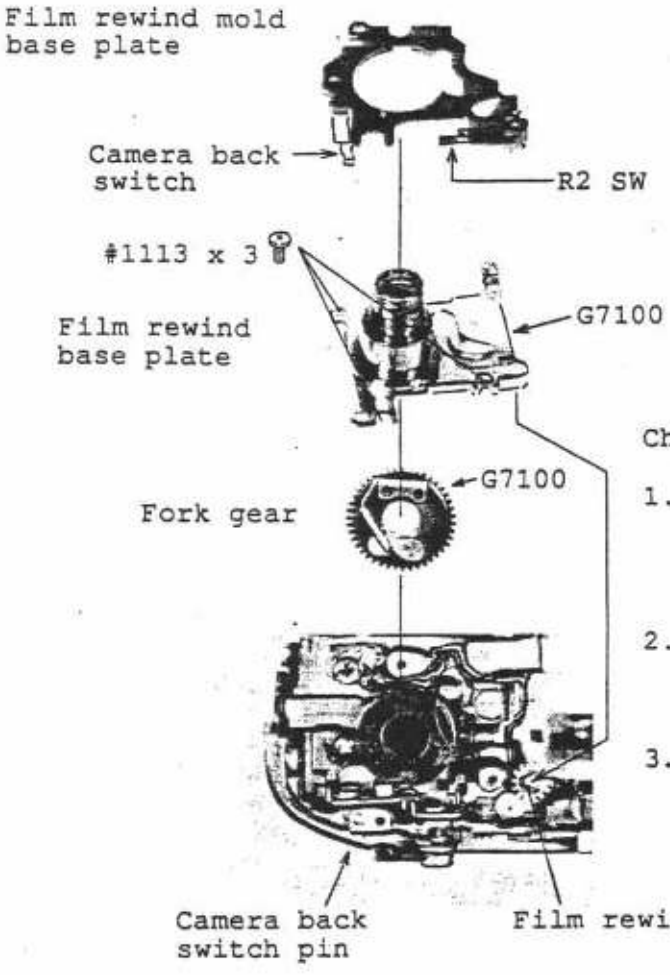
The tip of the filter selection lever (as shown in the figure) should be located within the range of approx. 0.4 from the lower end of the shutter.

Adjust by bending the part B as shown in the figure.



Arrange film rewind motor cables.
#964 x 3

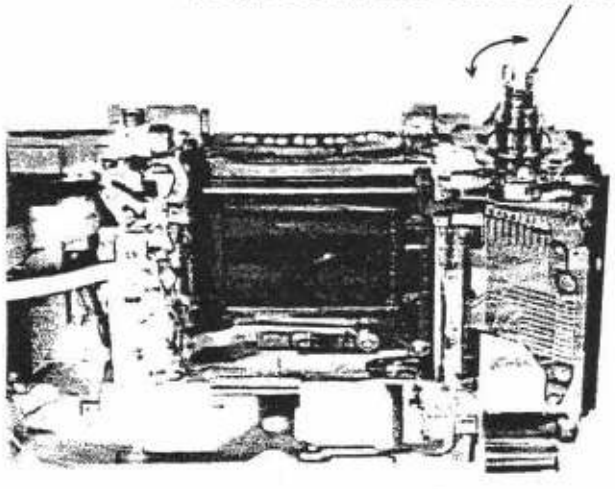
Film rewind unit



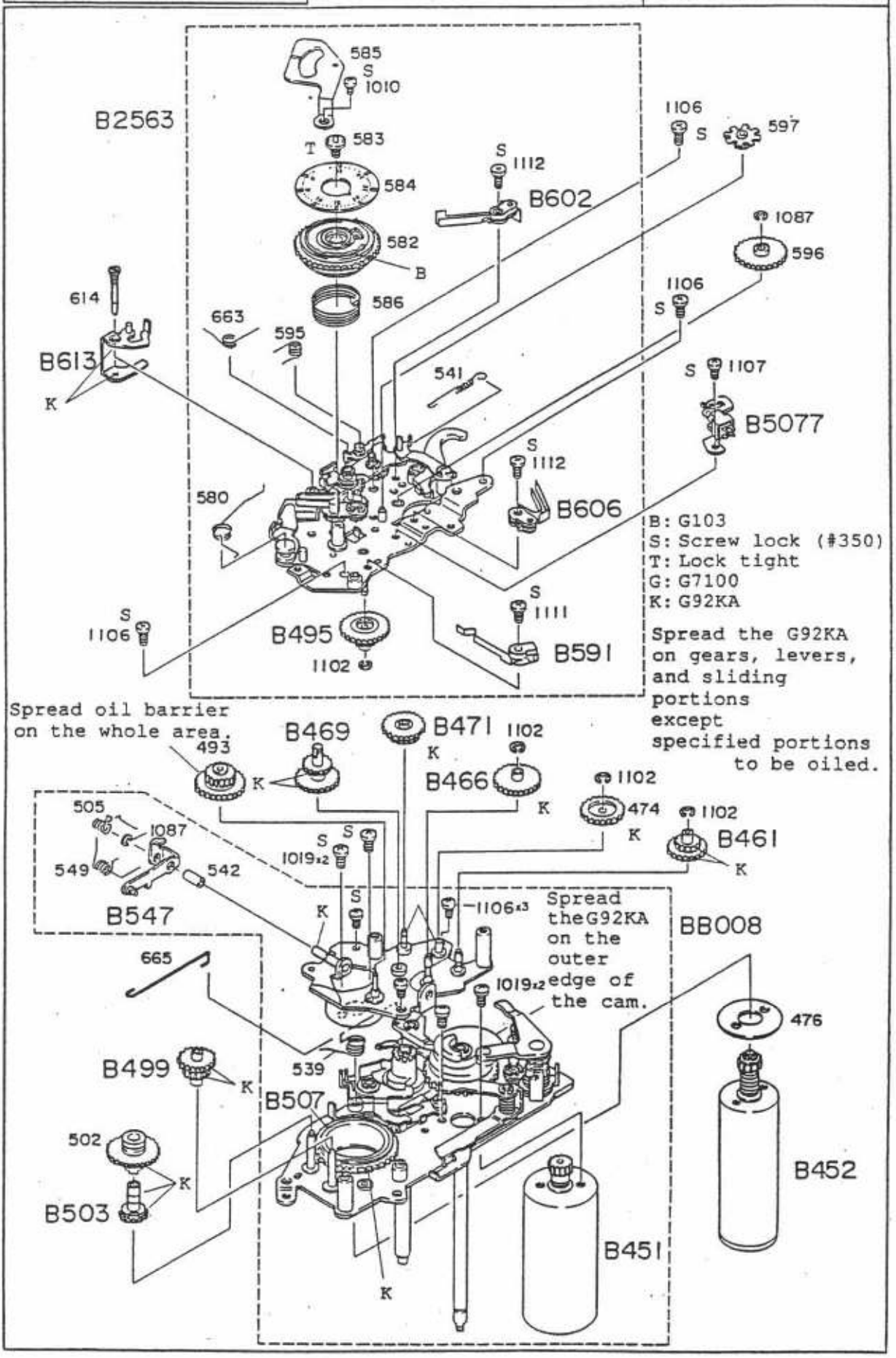
Check following items:

1. Gaps (up and down) of the film rewind shaft; 0.1 -- 0.3
2. ON-OFF operation of the camera back switch.
3. ON-OFF operation of the R2 SW.

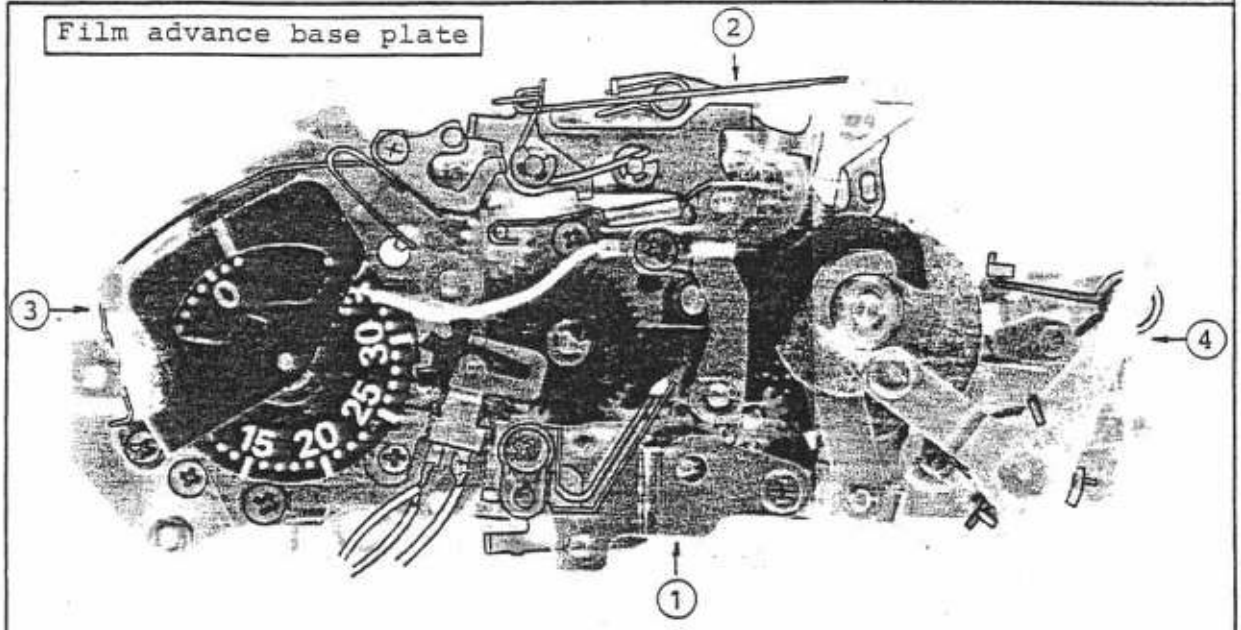
Insert the film rewind shaft from the other end.

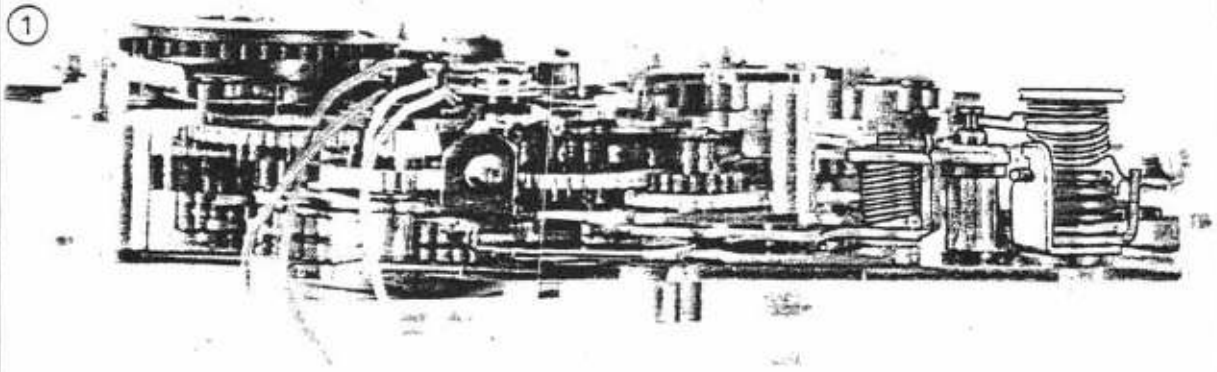


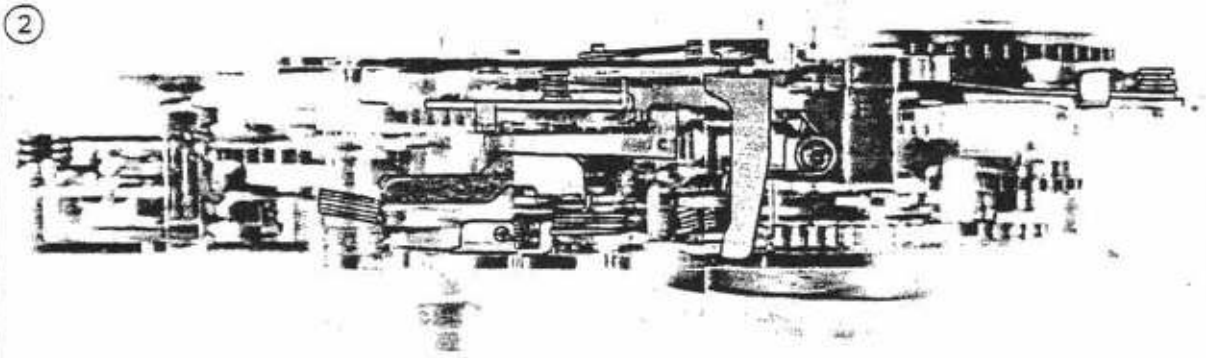
4. Lock the R2 lever (move the lever up). Check to see if there is irregular rotation and strange sound when rotating the film rewind shaft.

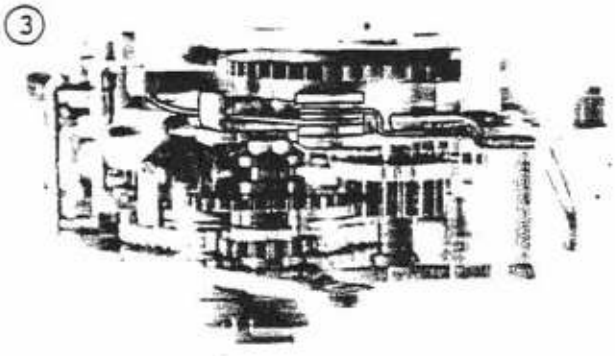

B2563
585
S
1010
T
583
584
582
B
586
614
B613
K
663
595
541
580
S
1106
B495
1102
S
1111
B591
S
1112
B602
1106
S
597
1087
596
1106
S
S
1107
B5077
S
1112
B606
B: G103
S: Screw lock (#350)
T: Lock tight
G: G7100
K: G92KA
Spread the G92KA on gears, levers, and sliding portions except specified portions to be oiled.
Spread oil barrier on the whole area.
493
K
B469
B471
K
1102
B466
K
1102
474
K
1102
B461
K
505
1087
549
542
B547
S
1019×2
S
S
K
1106×3
Spread the G92KA on the outer edge of the cam.
1019×2
665
B499
K
539
B507
502
K
B503
K
BB008
476
B452
B451

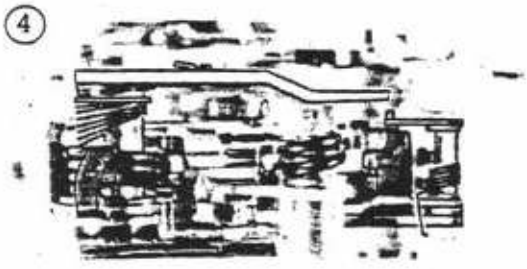
Film advance base plate





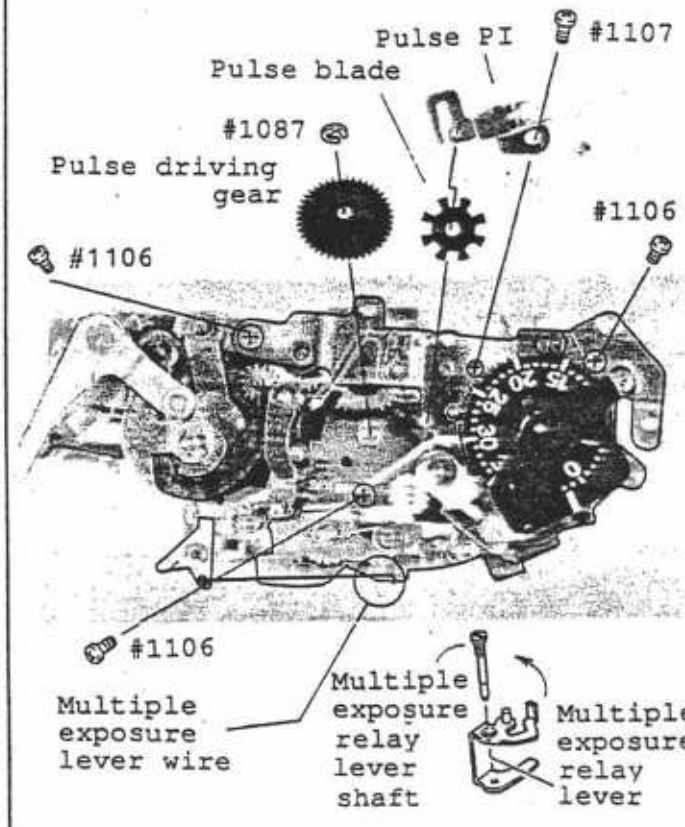






Film advance base plate unit, disassembling, assembling

Disassembling



1) Upper film advance unit (frame counter unit)

Pulse PI #1107

Pulse blade

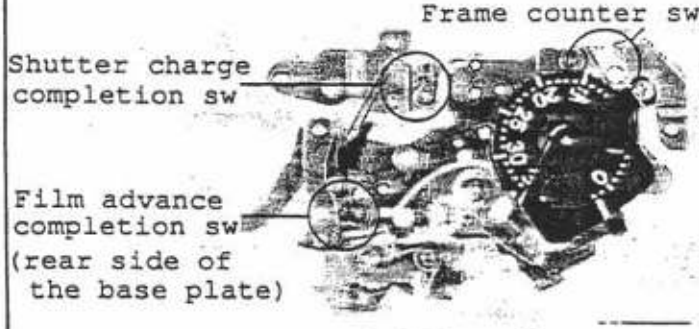
E clip #1087

(Do not remove pulse driving gear)

Multiple exposure relay lever shaft

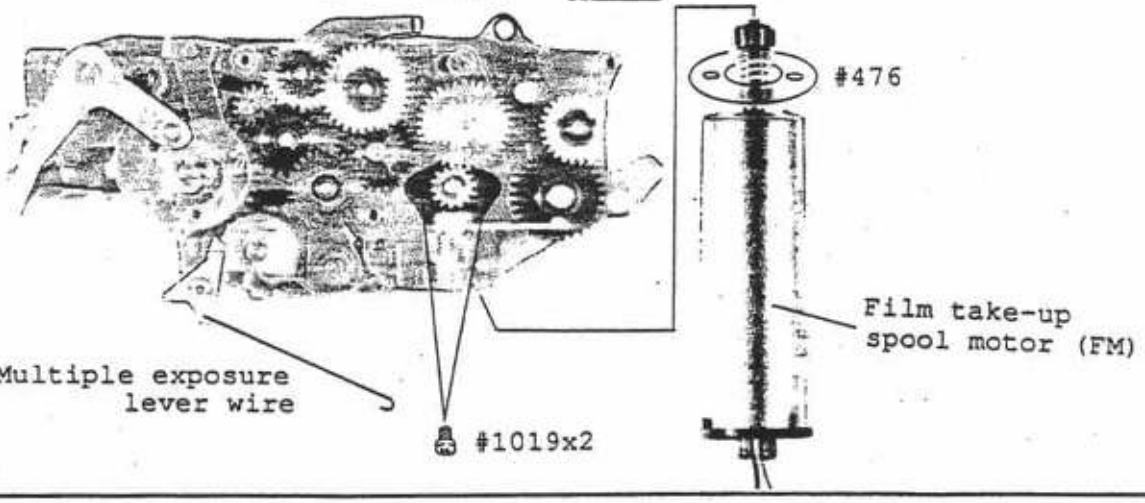
Multiple exposure relay lever

Multiple exposure lever wire

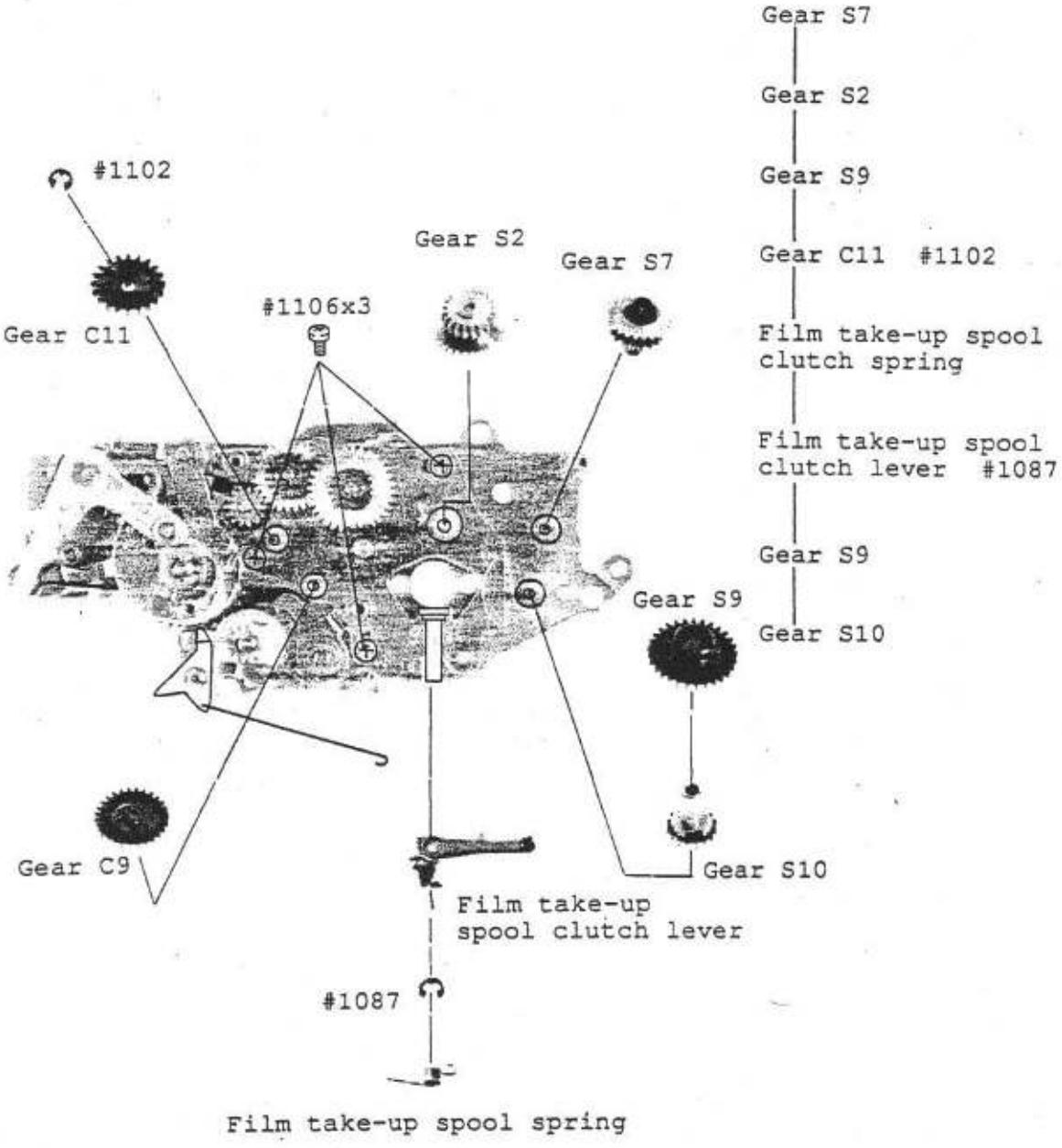


#1106x3

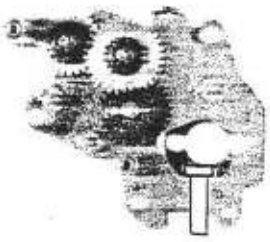
2) Film take-up spool motor (FM) #1019x2 #476

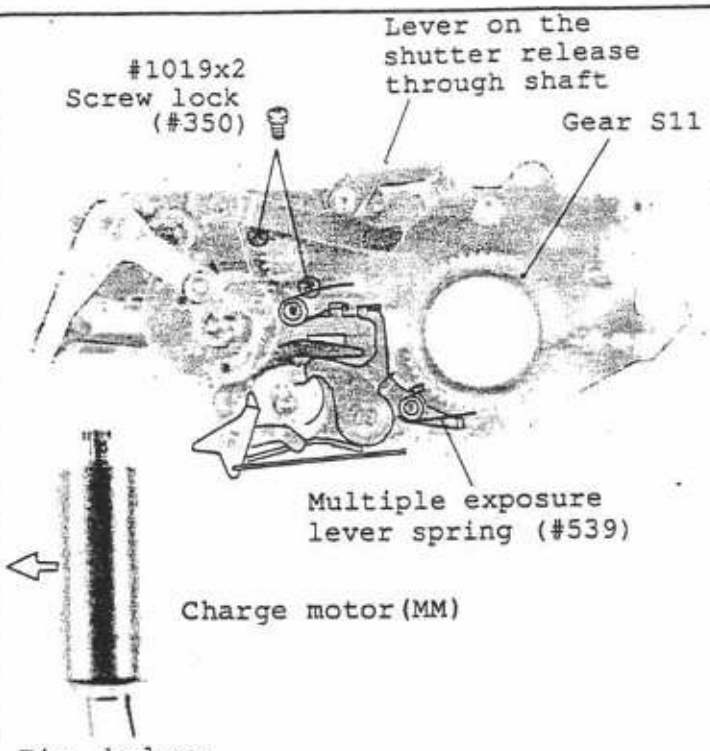


3) Inside film advance unit



Inside film advance unit





4) Shutter charge motor (MM) #1019x2

Assembling

(See page A12 for applying oil and attaching)

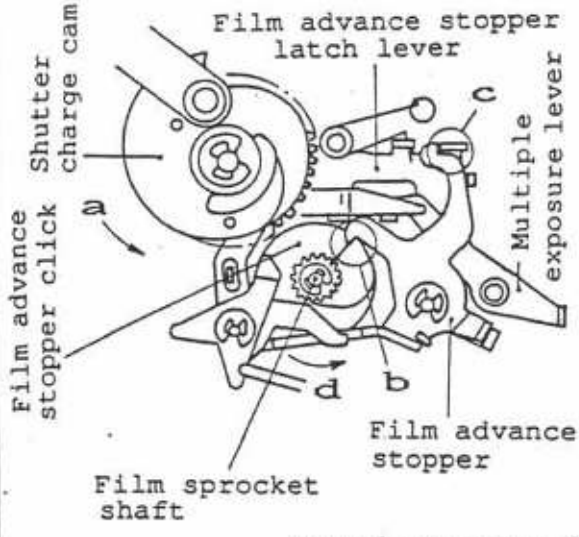
1) Shutter charge motor (MM)

#1019x2

Mount the motor by moving aside in the direction indicated by arrow.

Check the condition of the Film Sprocket shaft Film advance completion.

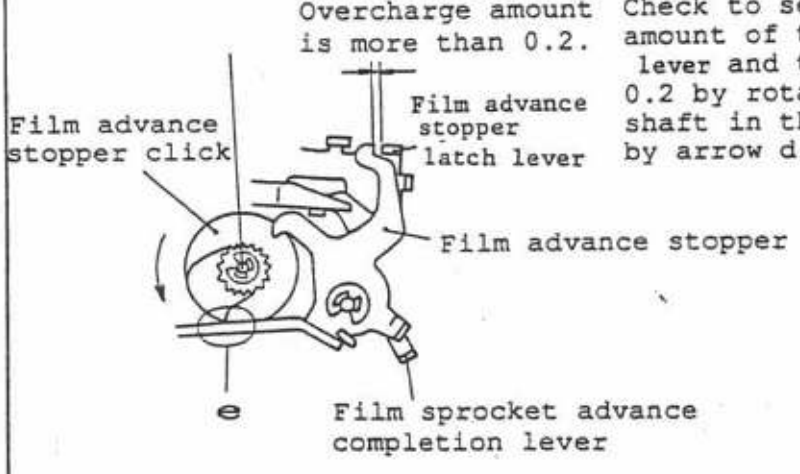
Fig. below:
Film sprocket advance completion state.



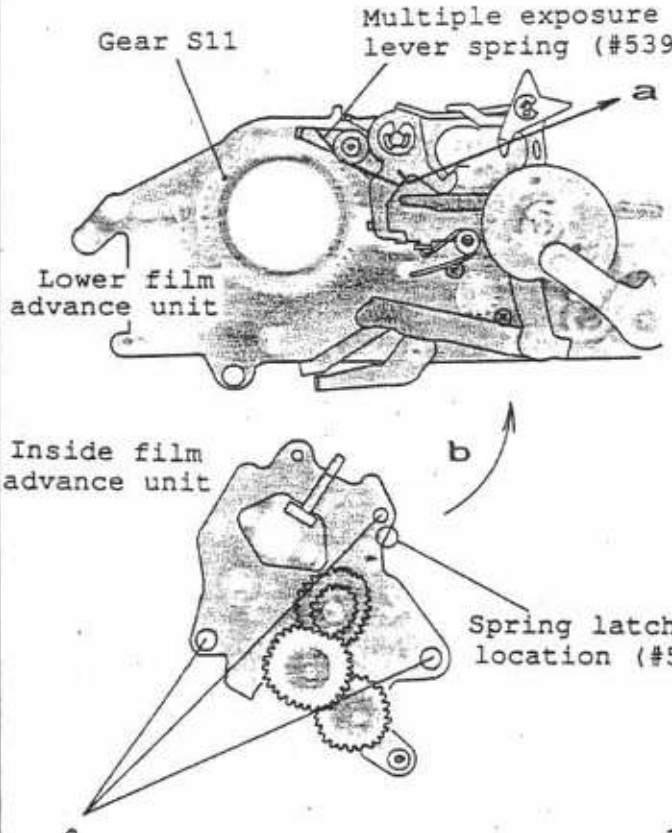
Set the Film Sprocket shaft to the film advance completion state

(1) Portions b and c (as shown in the figure) of the film advance stopper will be disengaged from the film advance stopper latch lever when the shutter charge cam is rotated in the direction indicated by arrow a.

(2) Portions b and c will be engaged when the film advance stopper click moves toward the portion e by rotating the Film Sprocket shaft in the direction indicated by arrow d (as shown in the figure). Check to see if the overcharged amount of the Film advance stopper latch lever and the stopper is more than 0.2 by rotating the film sprocket shaft in the direction indicated by arrow d. (See left figure)



2) Inside film advance unit

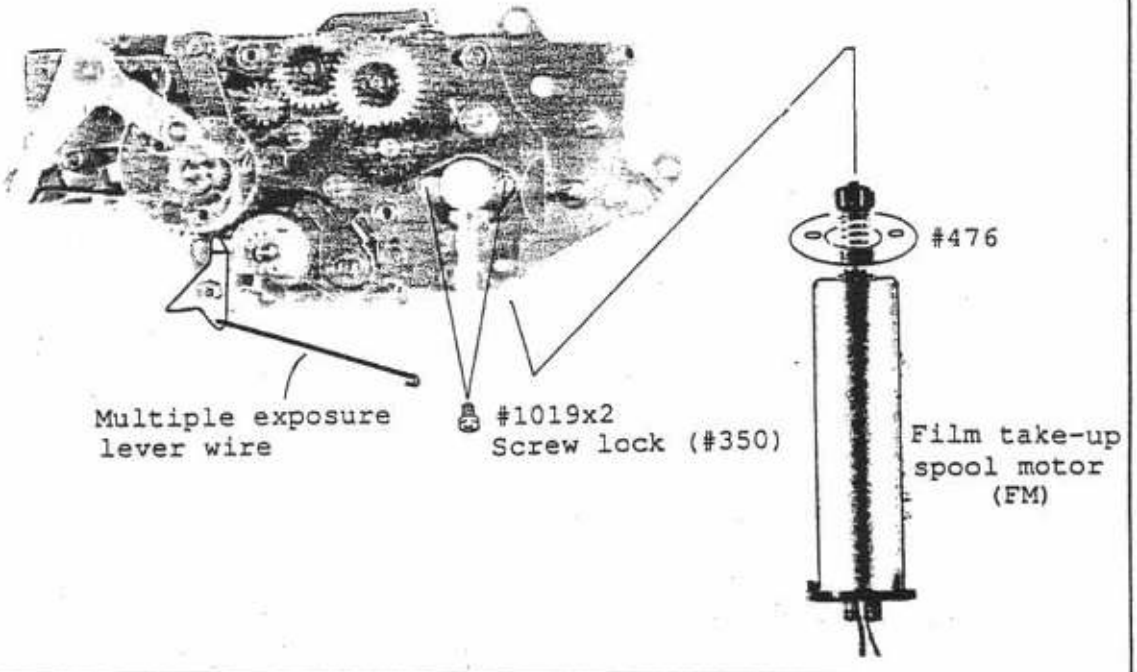


Mount this by rotating the inside film advance unit in the direction indicated by arrow b while pulling the spring (#539) in the direction indicated by arrow a.

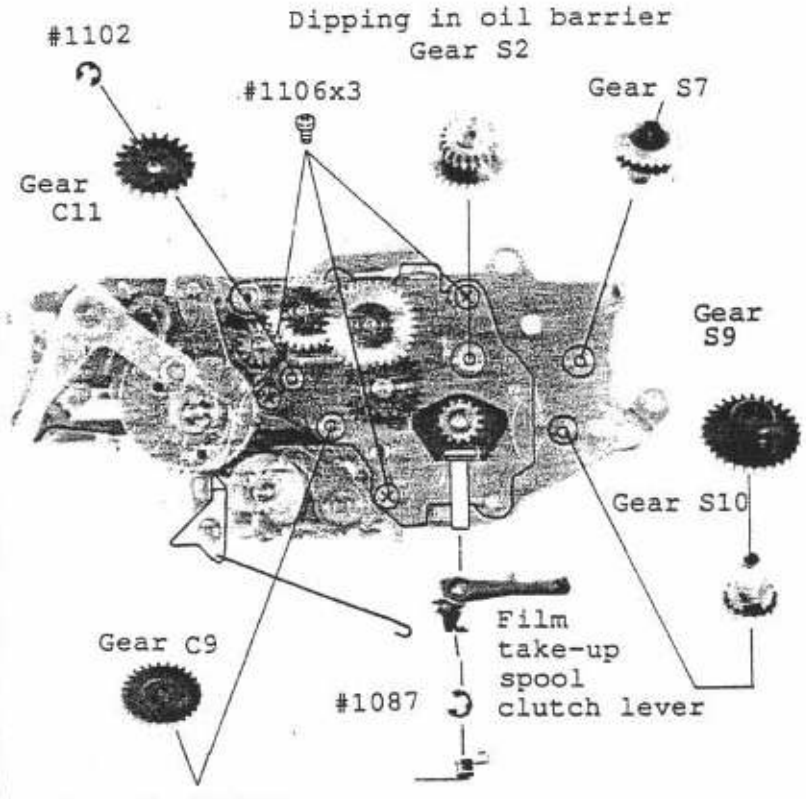
Note: Care should be taken not to pinch the spring (#539) between the lower film advance unit and the inside film advance unit.

#1106x3

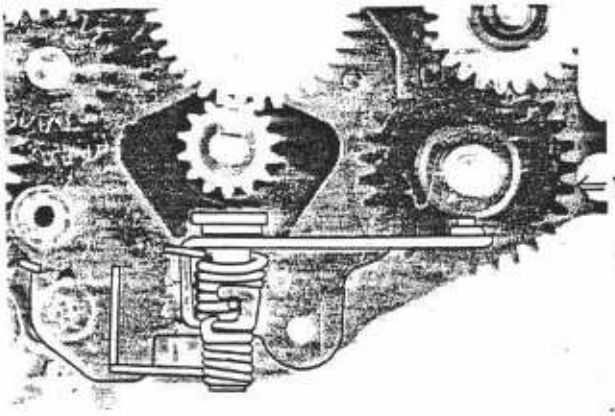
3) Film take-up spool motor (FM)
#476
#1019x2



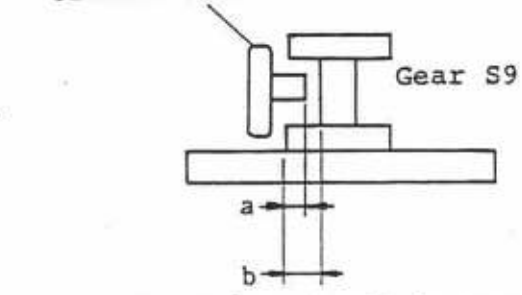
4) Mounting gears



Gear S10
Gear S9
Film take-up spool clutch lever #1087
Film take-up spool clutch spring
Gear C11 #1102
Gear C9
Gear S2
Gear S7

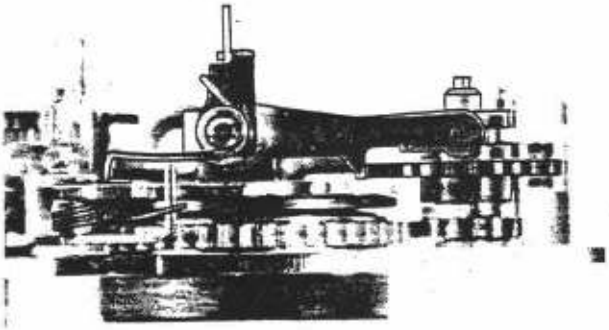


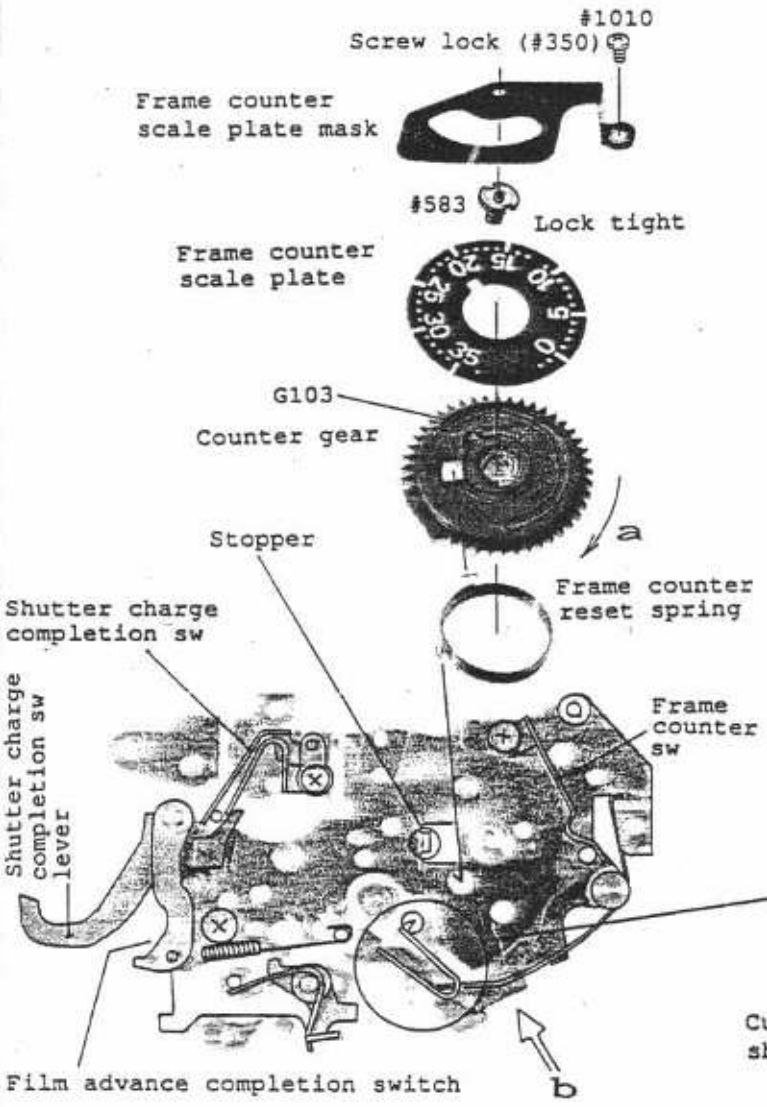
Check the film take-up spool clutch lever latching amount



Length b should be more than half of length a.

View A





5) Upper film advance unit

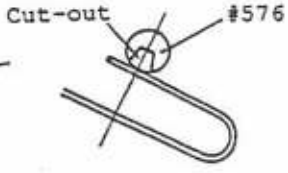
Frame counter reset spring

Frame counter gear
Fix with a stopper after rotation the gear two turns in the direction indicated by arrow a (clockwise)

#583

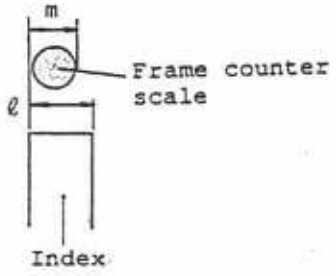
Frame counter scale
Use G103 to stick the projected portion of the frame counter gear and the caved portion of the frame counter scale.

Frame counter scale plate mask #1010



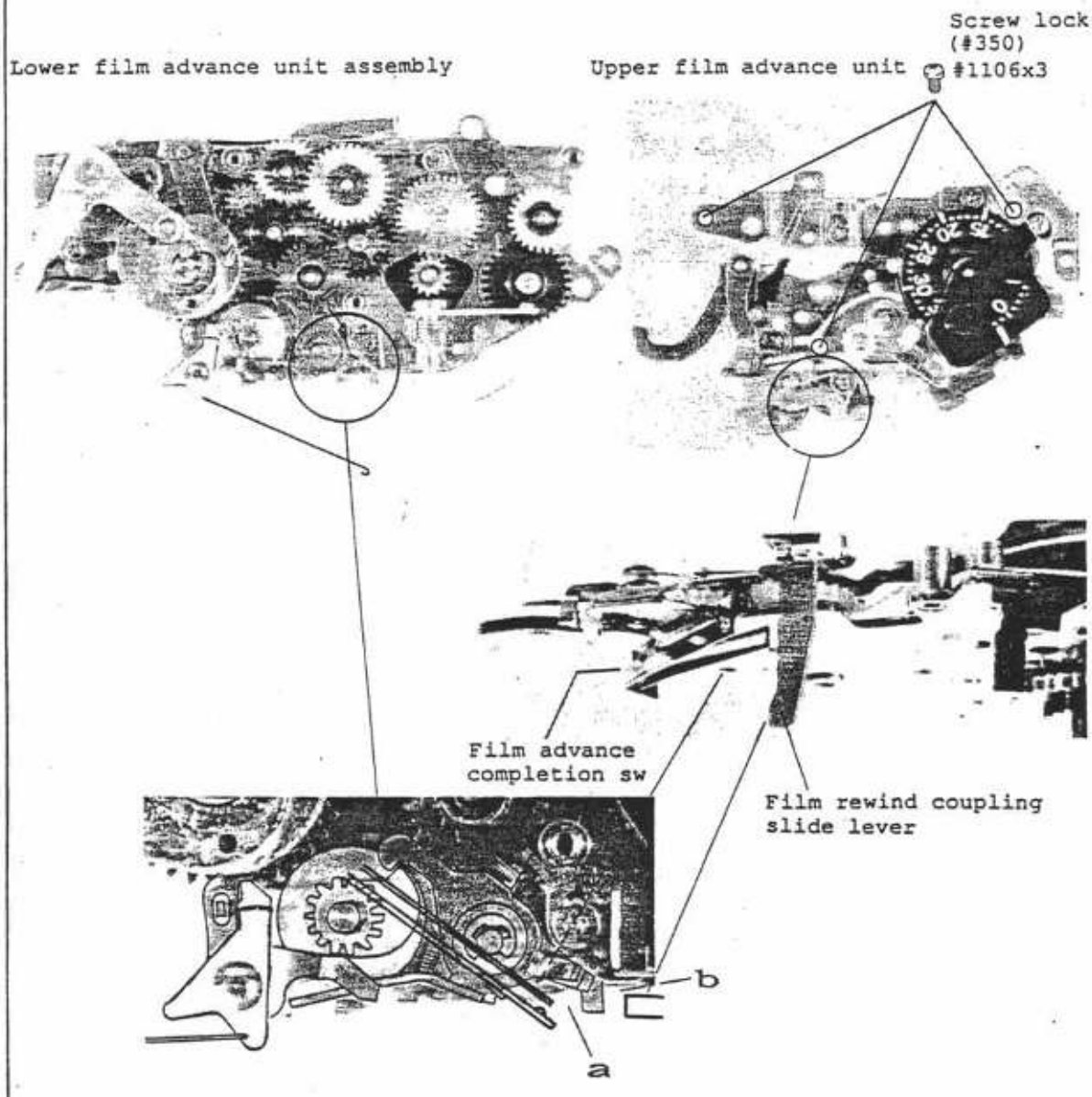
Cut-out of #576 should be faced with #577.

Adhere each screw with screw lock (#350).
Apply oil (G92KA) on each gear and lever.

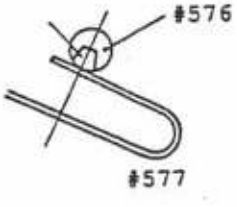


Inspection (ON-OFF)
- Shutter charge completion switch
- Film advance completion switch
- Frame counter switch
  Frame counter scale goes off between frame counter 0 and 1 when the frame counter gear is rotated clockwise.
- Check the location of the frame counter scale mask
  Frame counter scale is within the range of more than 2/3 of the width of the counter index (counter scale plate mask). See the figure at left.
  Adjustment: Adjust by moving the frame counter scale plate mask after unfastening #1010.

6) Mounting upper film advance unit
*Small parts (see page A14)



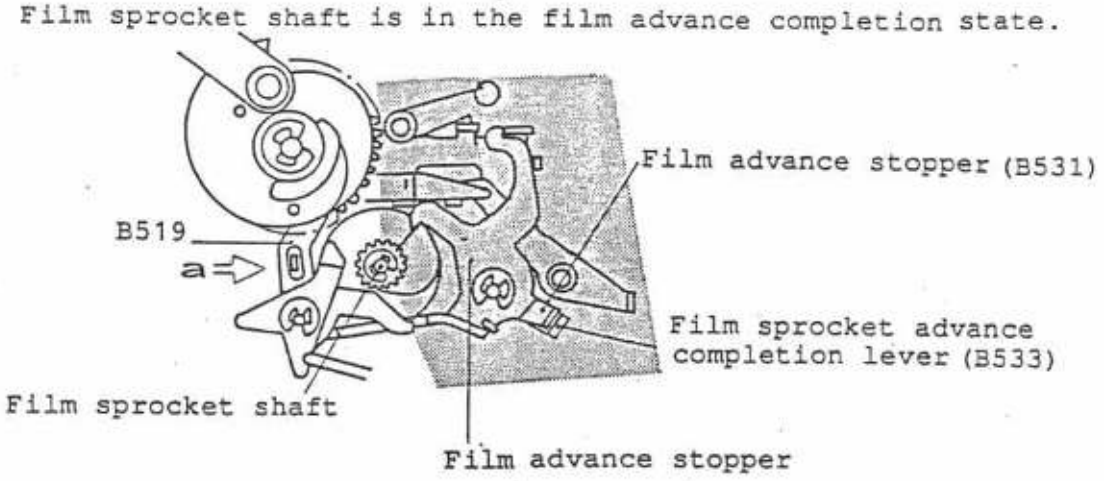
Lower film advance unit assembly
Set the film sprocket shaft and the shutter charge cam to the film advance completion state.



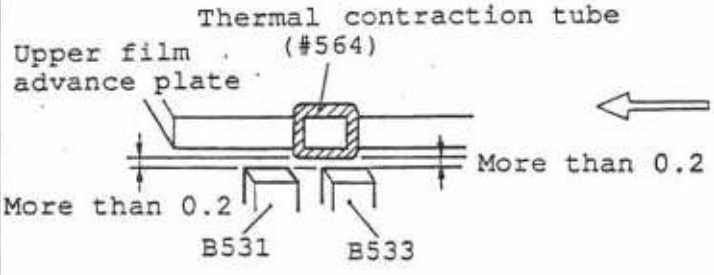
Upper film advance unit
Set the cut-out of #576 to the proper place as shown in the figure at left.
Mount the unit so that the contacts of the film advance completion switch comes to the location indicated by a in the lower film advance unit assembly, and the film rewind coupling slide lever comes to the location indicated by b in the lower film advance unit assembly. (See above figure)

#1106x3

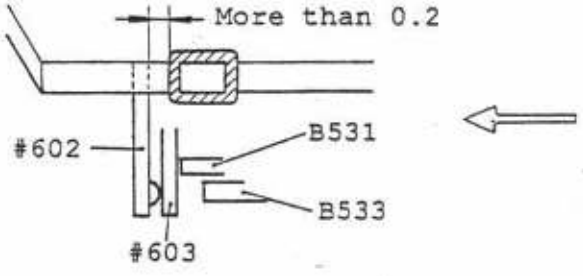
On-off inspection of film advance completion switch


Film sprocket shaft is in the film advance completion state.
Film advance stopper (B531)
B519
a
Film sprocket advance completion lever (B533)
Film sprocket shaft
Film advance stopper

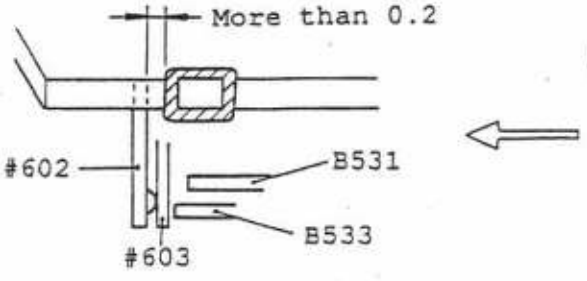
(1) Film advance completion switch is off in the film sprocket shaft advance completion state.



(2) The gap between the lower part of the thermal contraction tube (#564) and the upper side of #B531 and #B533 is more than 0.2 when rotating the film sprocket shaft while depressing #B519 in the direction indicated by arrow a.



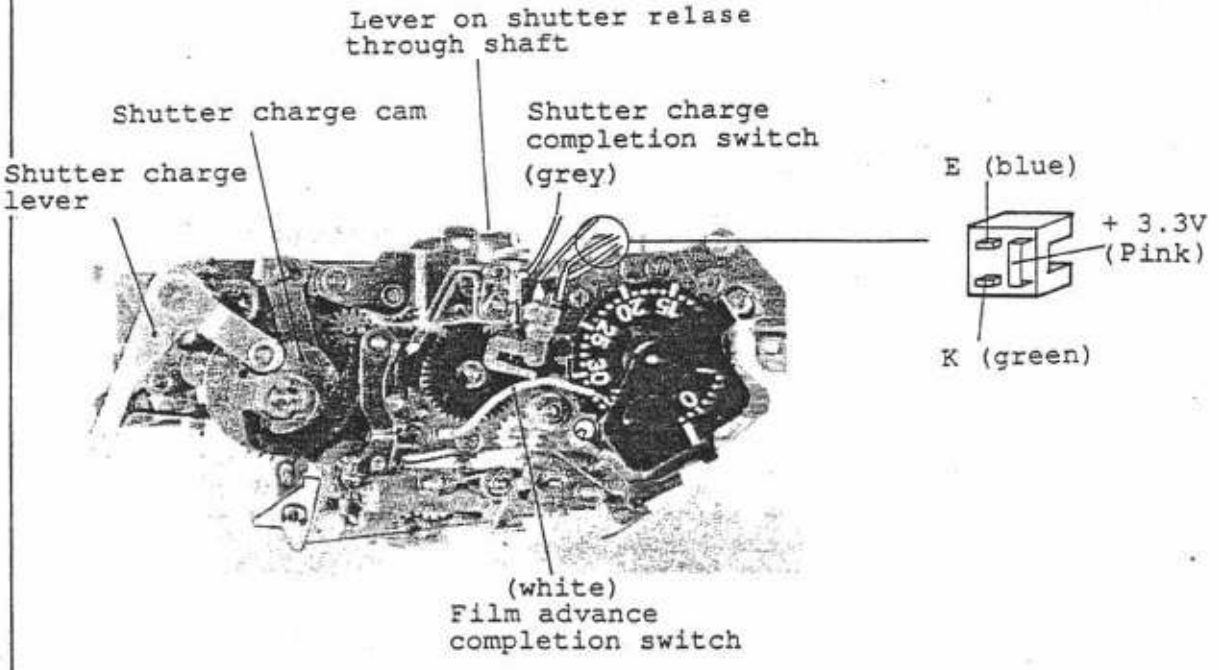
(3) Depress #519 in the direction indicated by arrow a while film sprocket shaft is in film advance completion state. (Set to the film advance stopper release state.) Make sure that film advance completion switch goes on by #B531 and the gap between the thermal contraction tube (#564) and #602 is more than 0.2.



(4) Rotate the film sprocket shaft in the above state. Make sure that the film advance completion switch goes on by B533 instead of #531. And the gap between the thermal contraction tube (#564) and #602 is more than 0.2.

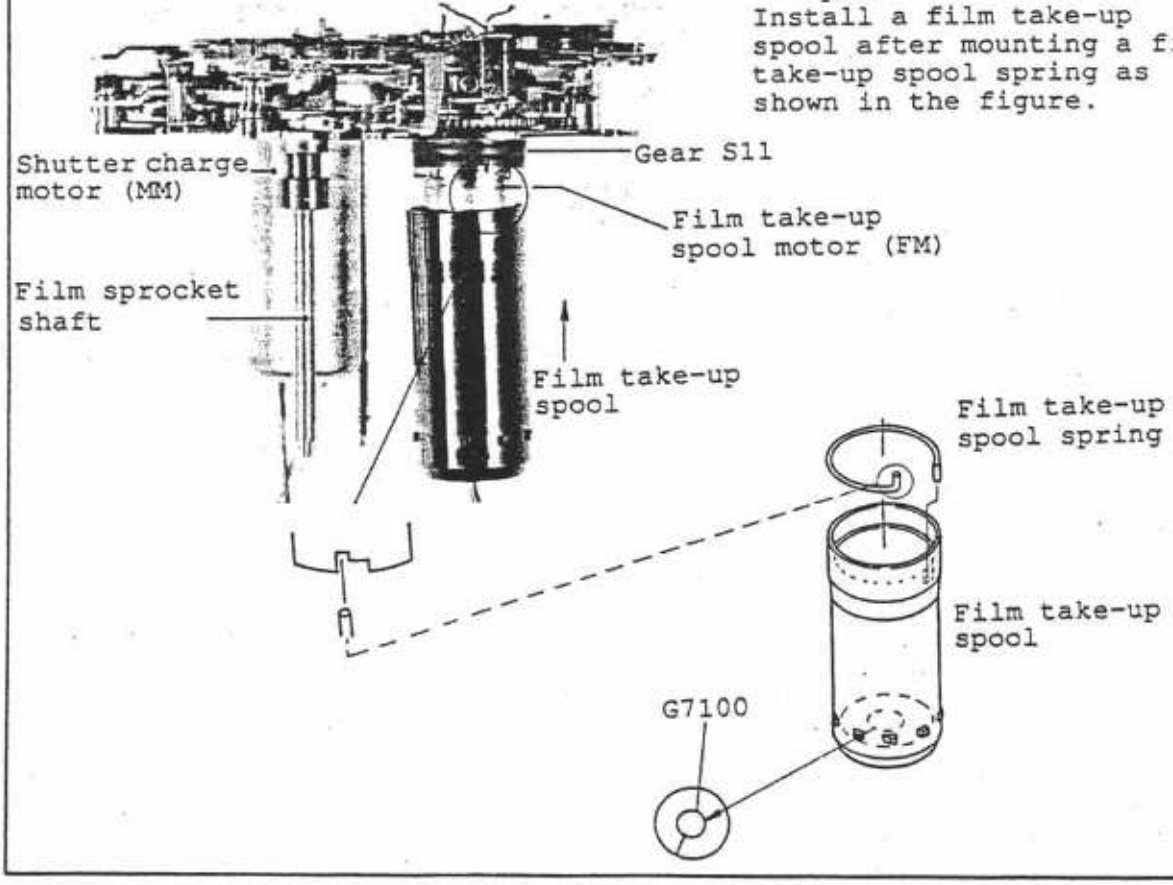
Mounting film advance base plate unit

Figure below: Film advance completion state

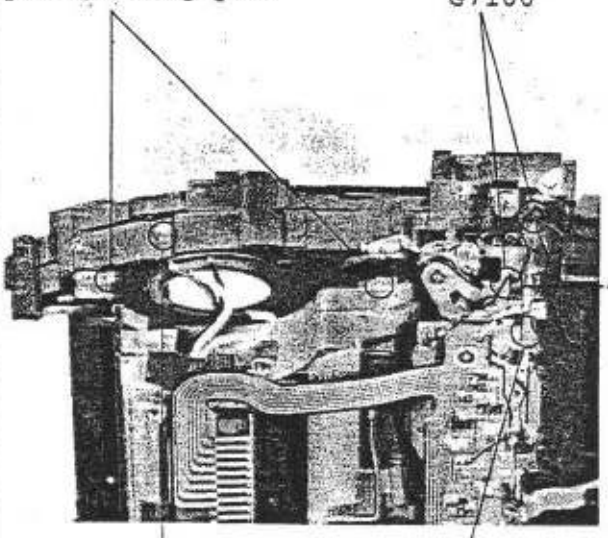


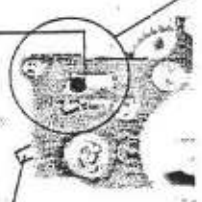
1) Mounting film take-up spool

Install a film take-up spool after mounting a film take-up spool spring as shown in the figure.



2) Latched portion of film advance base plate and shutter.
•: Indicating latched portion





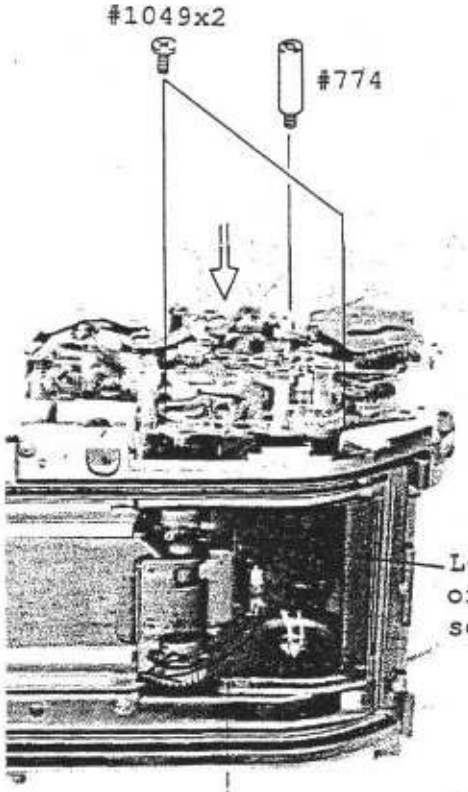
Resetting method
Reset the shutter Mg set lever by depressing the lever on the shutter release through shaft (see page A22) while setting it to the film advance completion state by rotating the shutter charge cam counterclockwise.

3) How to install film advance base plate unit.

(1) Reset the shutter Mg set lever by depressing the lever on the shutter release through shaft after setting to the film advance completion state by rotating the shutter charge cam counterclockwise.

(2) Set to the film sprocket shaft advance completion state by rotating the film sprocket shaft counterclockwise.

(3) Mount the film advance base plate by pulling the EL roller forward.


#1049x2
#774
Left side of film sprocket screw (#1074)
Pull the EL roller forward and mount a film take-up spool on the film advance base plate unit.

Note:
• Film advance base plate should be surely fixed in the film advance base plate positioning pin.
• Film advance base plate and shutter are surely latched.
• Film take-up spool motor (FM) cables should not be pinched.

(4) (See page A21)
Mount film advance base plate mounting screws (#1049x2, #774) after resetting the film advance stopper by depressing B519 in the direction indicated by arrow a.

Temporarily fasten the film sprocket screw (#1074x1) (the left side sprocket screw)

Inspection

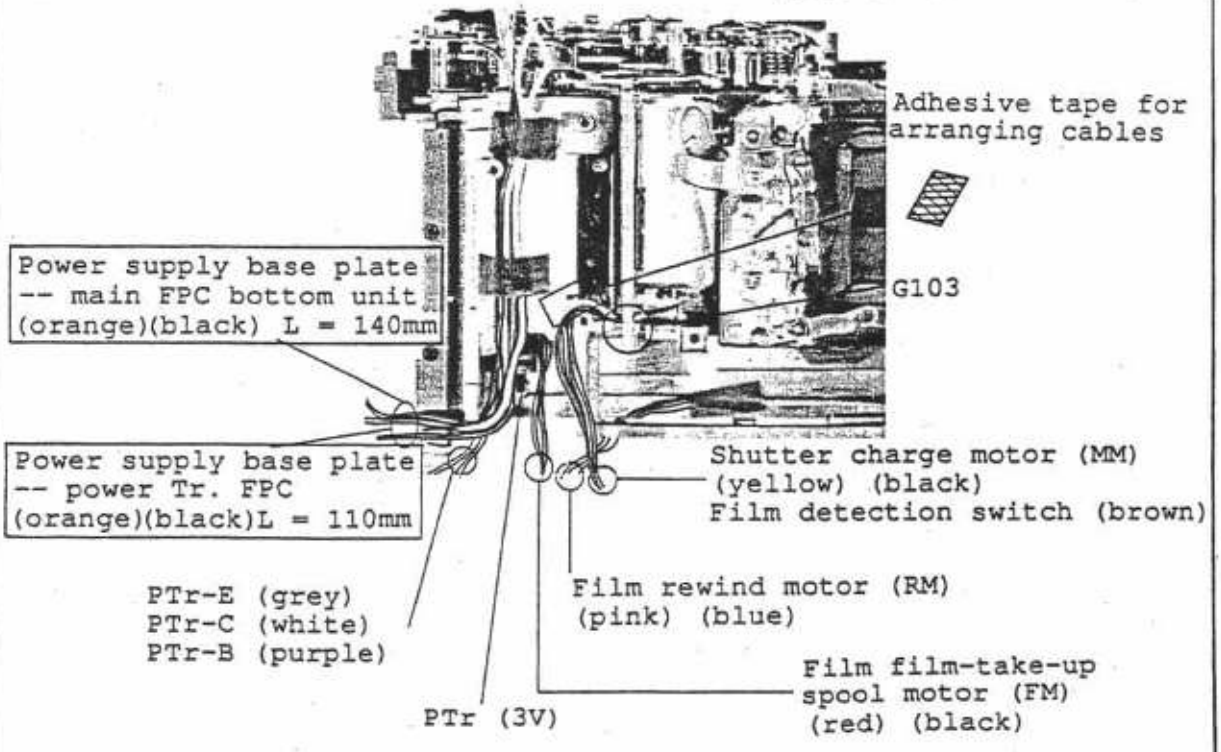
a. Shutter charge
Rotate the shutter charge cam counterclockwise.

b. Shutter release
Depress the lever on the shutter release through shaft

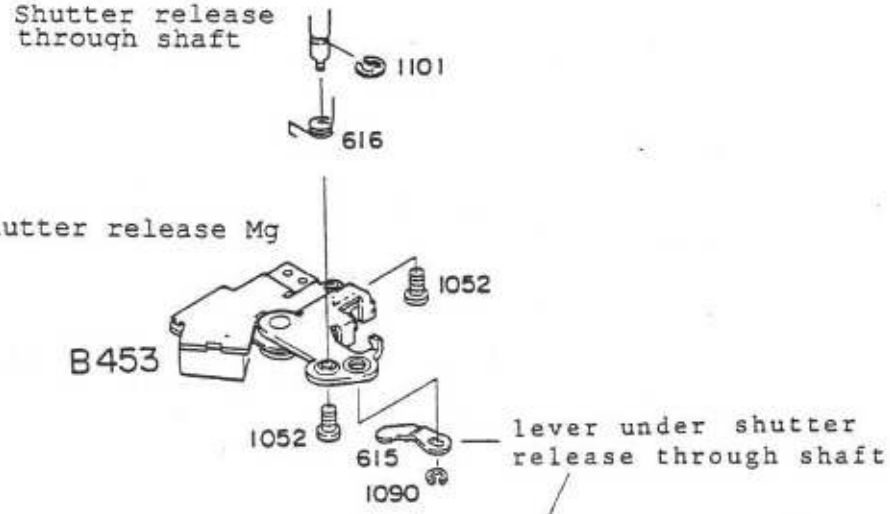
It turns to T (time)

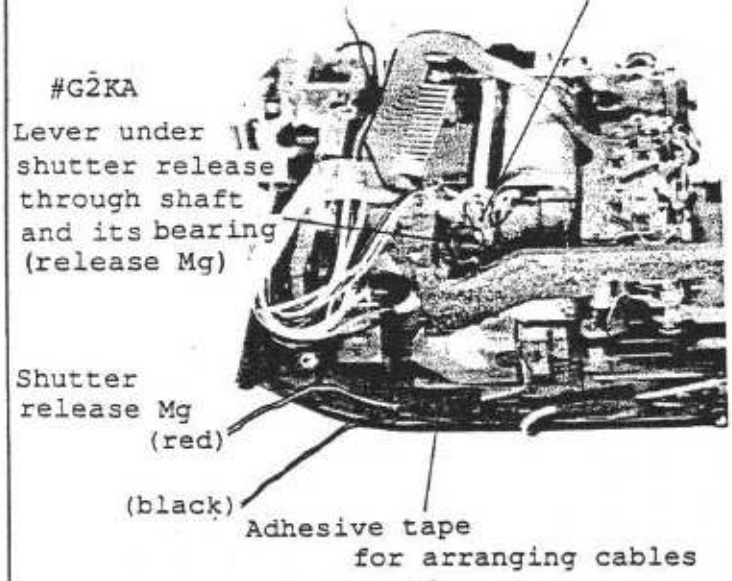
Reset the T by moving the T lever in film rewind direction.

(5) Cable arrangement
(□: Junction cables)


Adhesive tape for arranging cables
G103
Power supply base plate -- main FPC bottom unit (orange)(black) L = 140mm
Power supply base plate -- power Tr. FPC (orange)(black)L = 110mm
Shutter charge motor (MM) (yellow) (black)
Film detection switch (brown)
Film rewind motor (RM) (pink) (blue)
PTr-E (grey)
PTr-C (white)
PTr-B (purple)
Film film-take-up spool motor (FM) (red) (black)
PTr (3V)

Shutter release Mg, Lever under shutter release through shaft

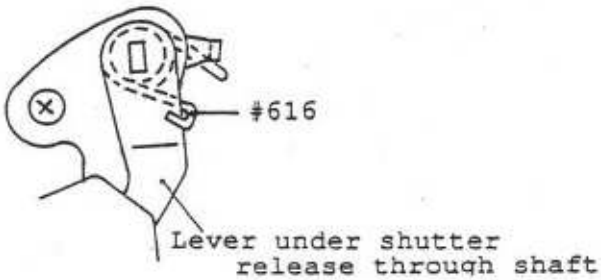




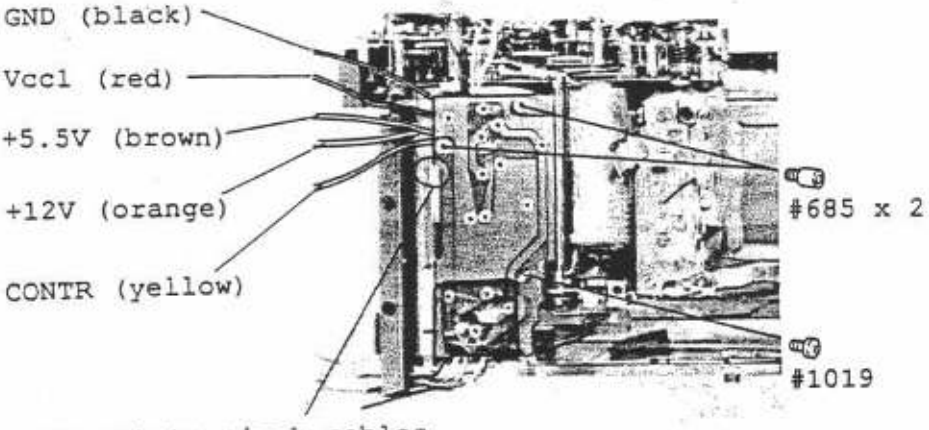
Inspection

a. Thrut play of shutter release through shaft: 0.1 -- 0.3
b. charge amount of the lever under the shutter release through shaft: More than 0.2
Check the charge amount by rotating the shutter charge cam counterclockwise.

Spring latching

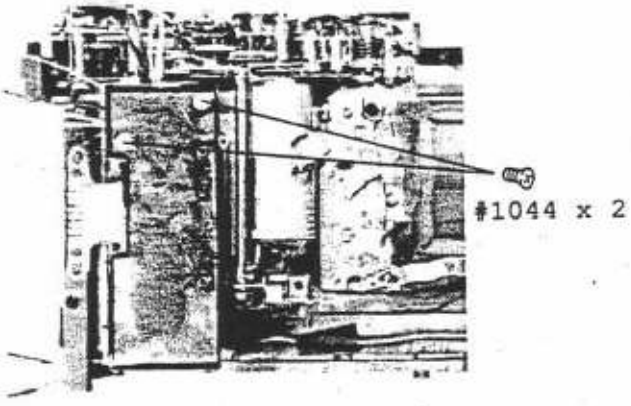


DC-DC converter base plate

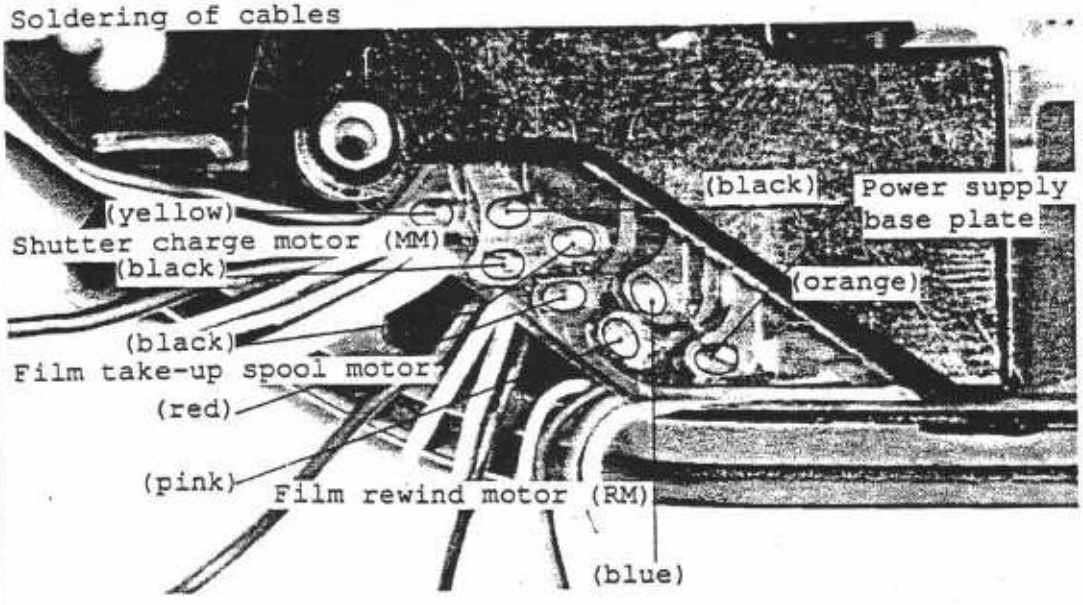


*Be sure not to pinch cables.

Power Tr FPC unit

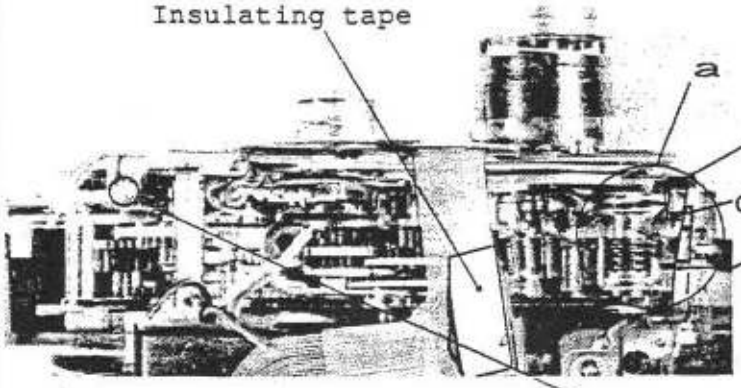


Soldering of cables



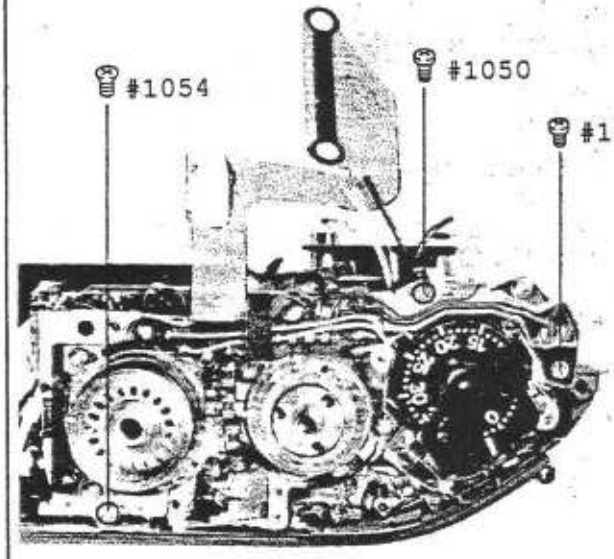
Shutter speed dial base plate

1) T (time) lever
R1 set lever
Latched position



• T (time) lever

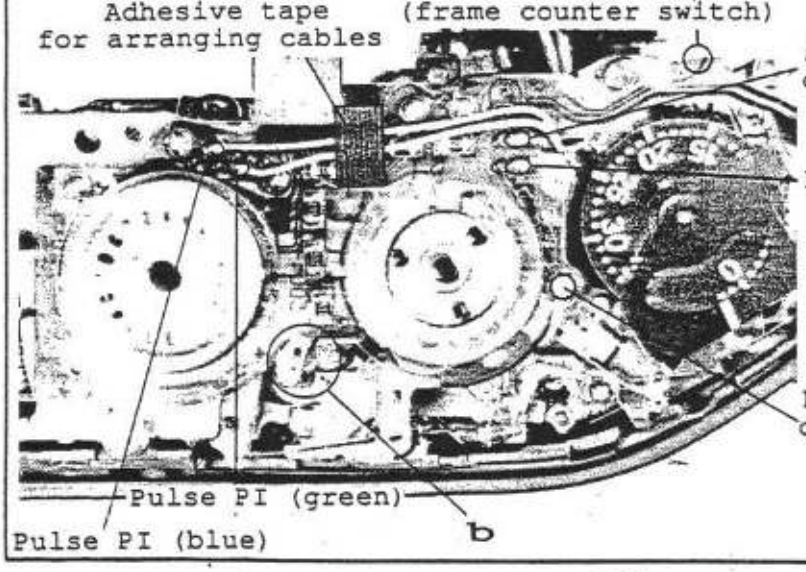
See the portion indicated by a in the figure.



• R1 set lever
See the portion indicated by b in the figure.
R1 set lever on the film advance base plate (upper film advance unit) and R1 sw lever on the shutter speed dial base plate should be latched.

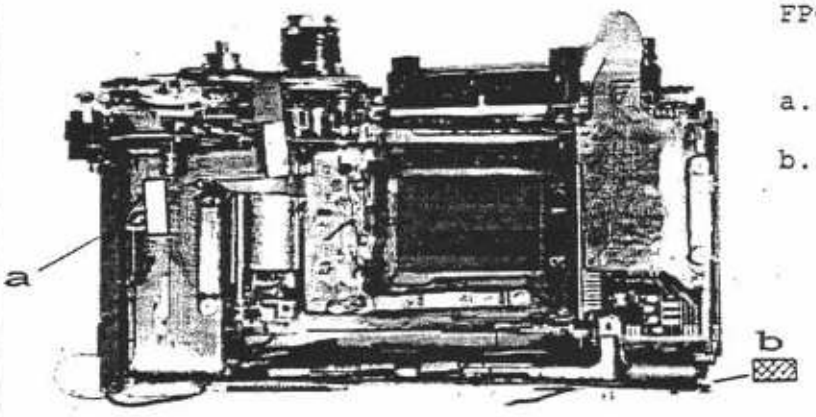
2) Mounting shutter speed dial base plate
#1050
#1054
#1106

3) Soldering cables



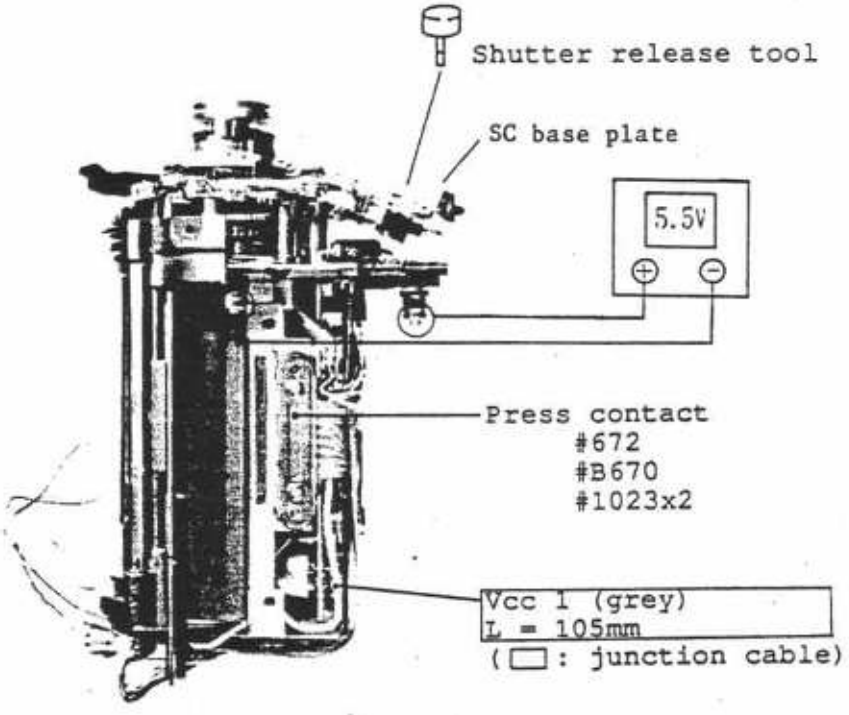
Mounting Main FPC

Refer to pages D10 to D11 when mounting main FPC.



a. Insulating tape

b. Adhesive tape for arranging cables. Adhere cables on the rear side of the main FPC.



Checking camera back

(Refer to above figures)

1) Set the SC base plate as shown in the above figure.
2) Press contact the film advance side press contact.
3) Supply 5.5V power to the power supply base plate.
4) Mount a shutter release tool (self-made tool)

Note: Set the shutter speed dial to 1/4000 sec. or slower until AE adjustment is completed.

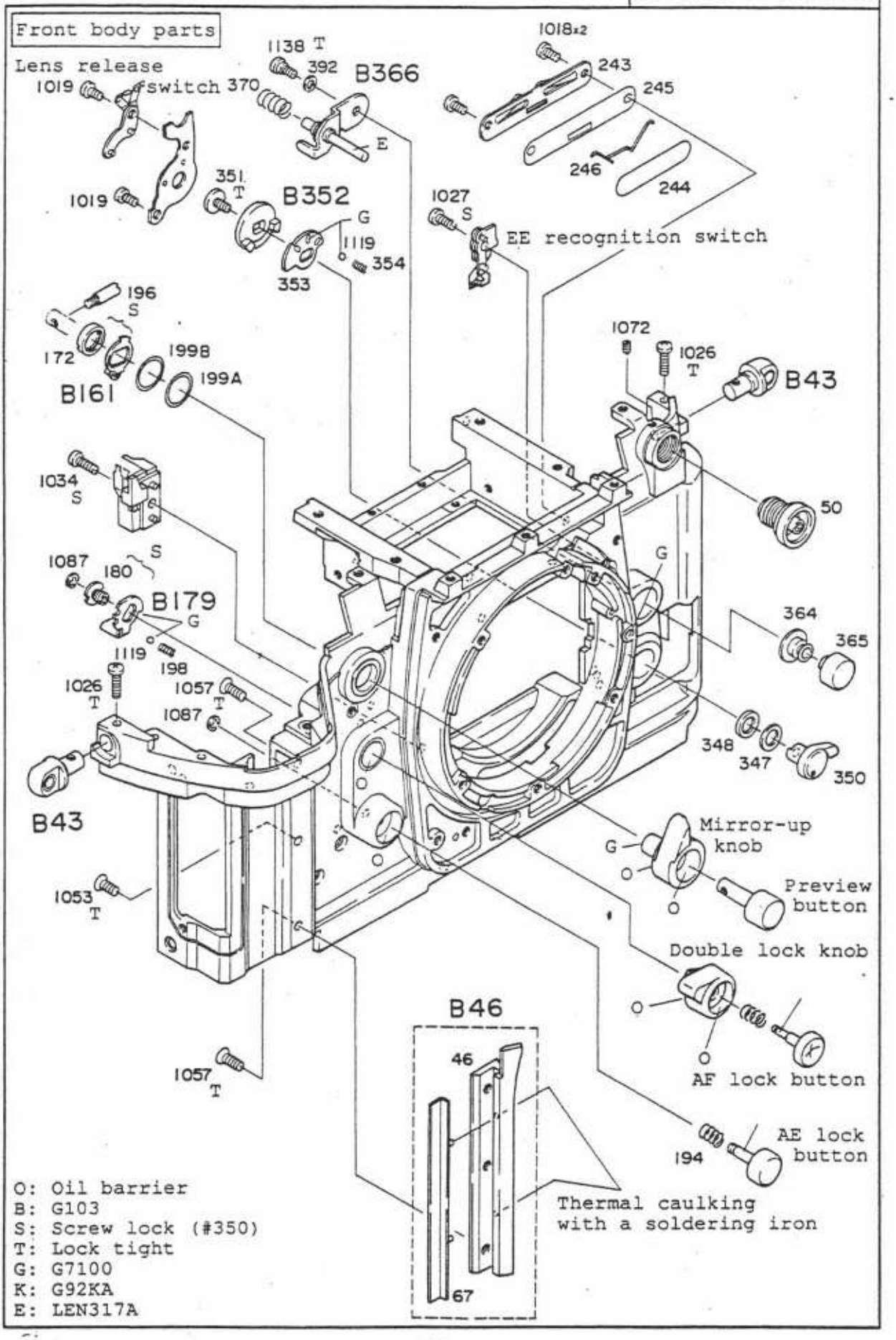
A. Check the back body (as shown on page A28).

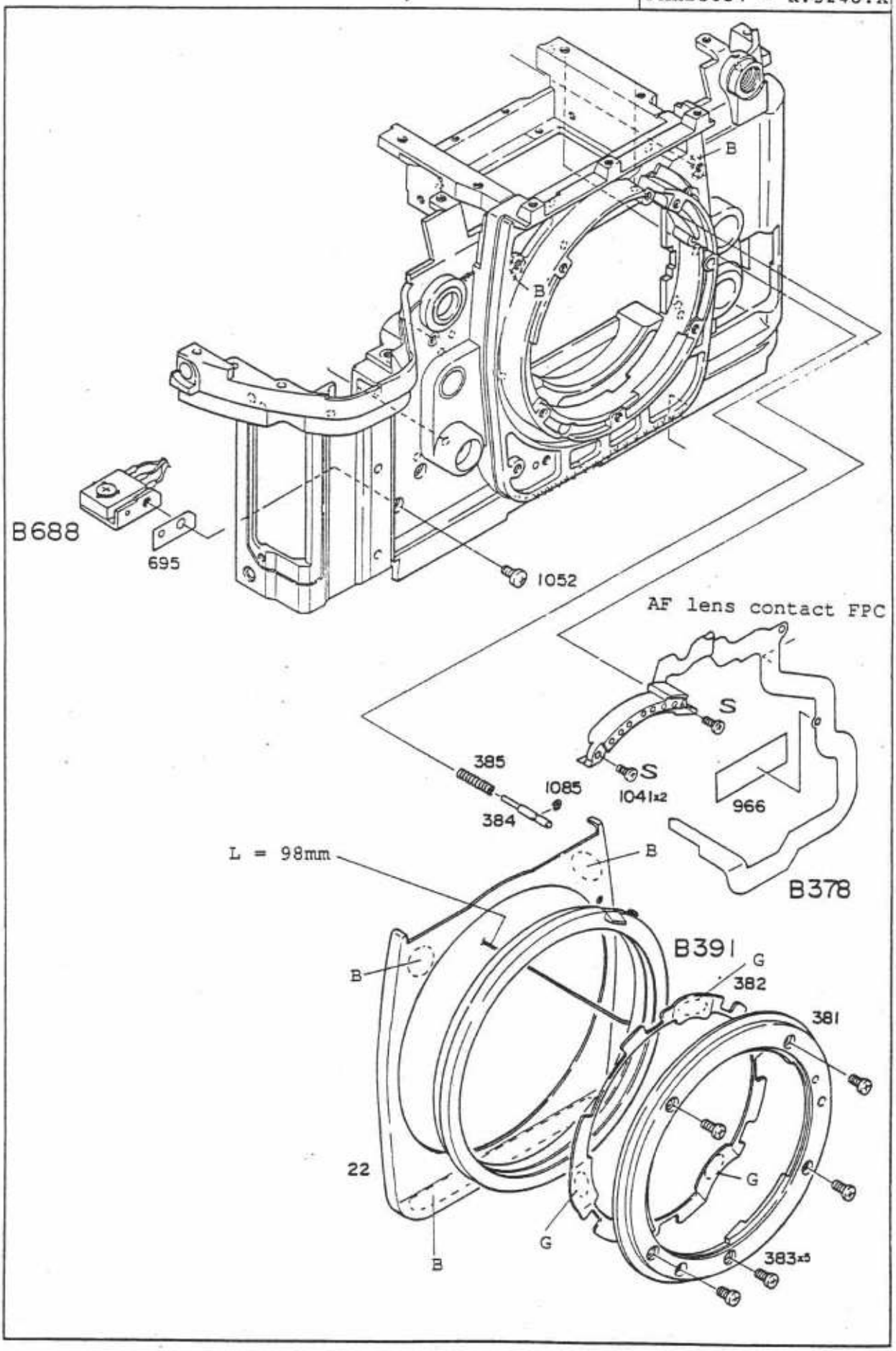
- Set the exposure selector mode to M
- Turn off the camera back switch (push the camera back switch pin)

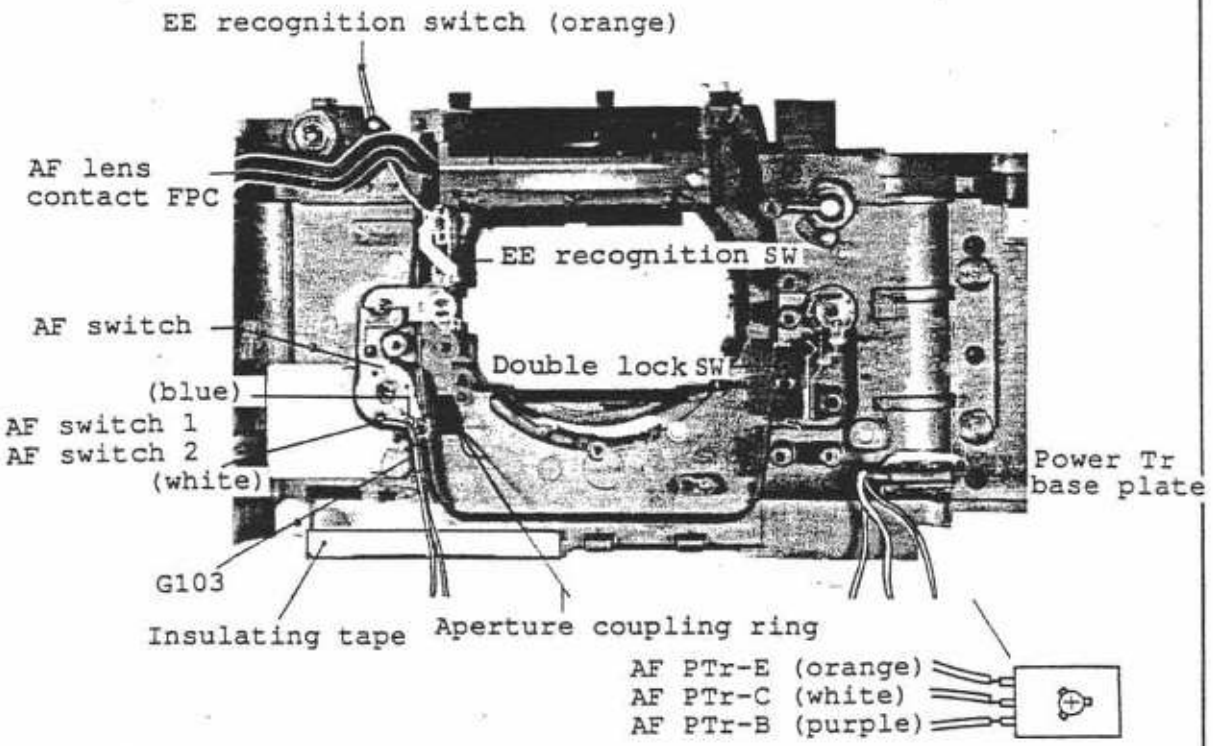
(1) Shutter release
(2) Shutter speed
(3) Mechanical shutter charge sequence
(4) S-C mode (L, S, C_H, C_L, C_S, Self-timer)

B. Personal computer and back body inspection
(Hook up personal computer and communication tool [J15279])

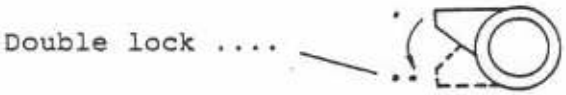
(1) Inspection of operation
Film take-up spool motor
Film rewind motor
Shutter release
Mechanical shutter charge sequence
(2) Inspection of switches
(3) Inspection of dials
(4) Inspection of LCD display


Front body parts
Lens release switch
1019
1019
1138 T
392
B366
370
E
1018x2
243
245
246
244
351
T
B352
G
1119
354
353
1027
S
EE recognition switch
196
S
172
1998
199A
B161
1072
1026
T
B43
50
1034
S
1087
180
S
B179
G
1119
198
1026
T
1057
T
1087
364
365
348
347
350
G
B43
Mirror-up knob
Preview button
1053
T
Double lock knob
AF lock button
B46
46
67
1057
T
194
AE lock button
Thermal caulking with a soldering iron
O: Oil barrier
B: G103
S: Screw lock (#350)
T: Lock tight
G: G7100
K: G92KA
E: LEN317A

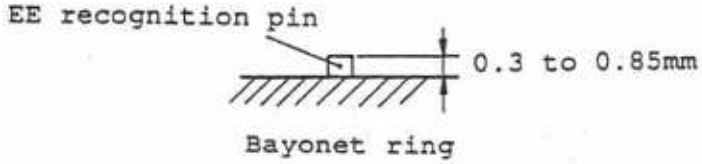

B
B
B688
695
1052
AF lens contact FPC
S
385
1085
384
S
1041x2
966
B378
L = 98mm
B
B391
B
G
382
381
C
C
22
G
G
B
383x5



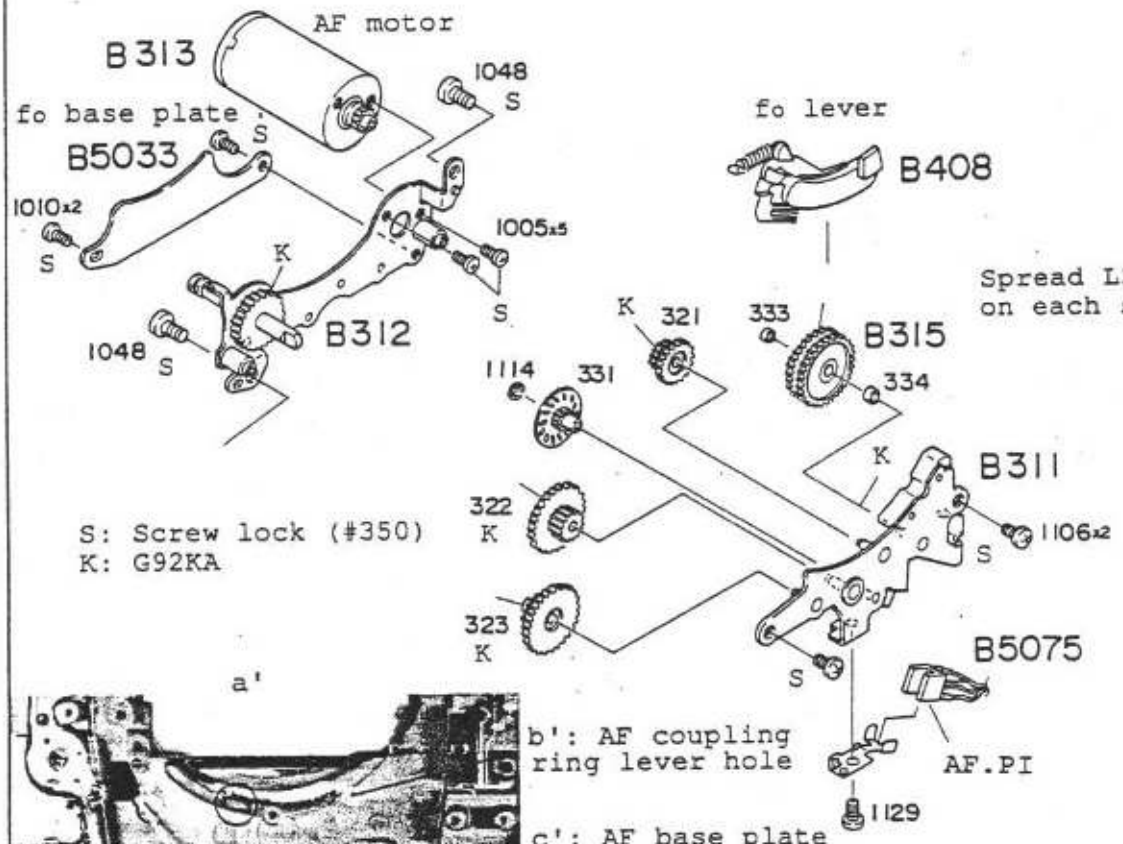
1) Checking double lock switch
The switch turns on when the double lock knob is set to the double lock side.

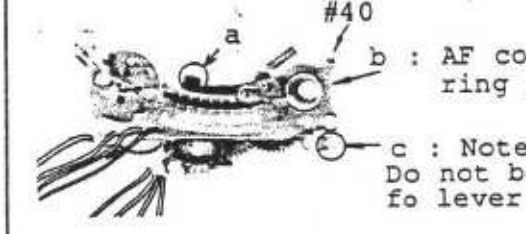


2) Checking EE recognition switch
The switch turns off at the height of 0.3 to 0.85mm from the bayonet ring surface.



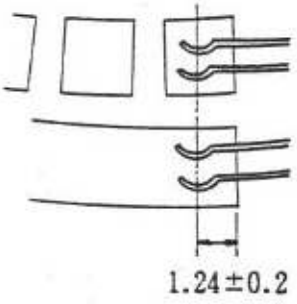
AF base plate unit, fo base plate unit





Checking fo base plate
brush positioning

Adjustment of btush position on
fo base plate



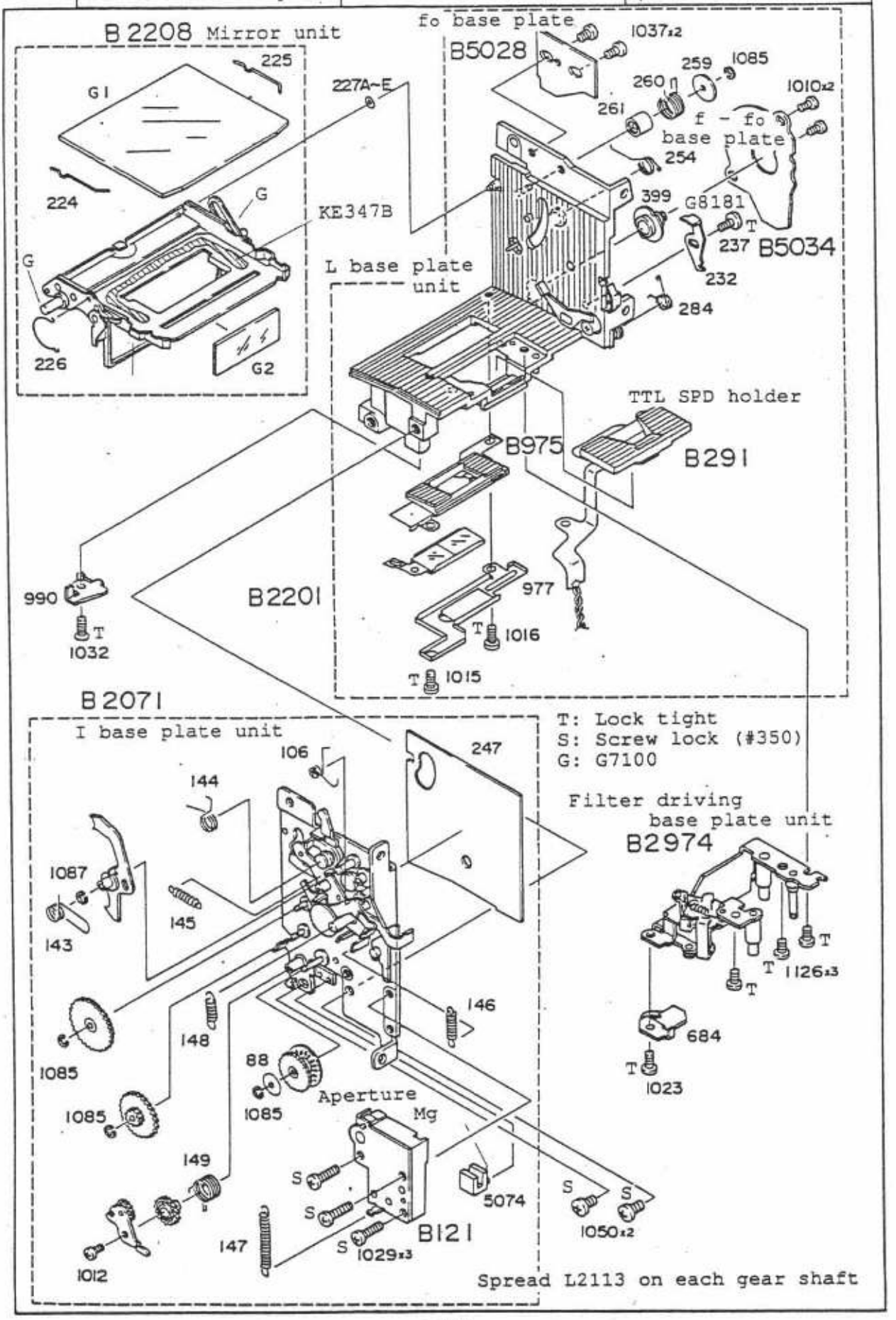
There should be a space between brush contact portion
and end of fo pattern when lens is not attached.

Mount the fo lever on the AF base plate unit.

Mount the AF base plate unit on the front body by adjusting levers and pin indicated by arrows in the figures:
a - a': fo lever
b - b': AF coupling lever
c - c': AF base plate positioning pin

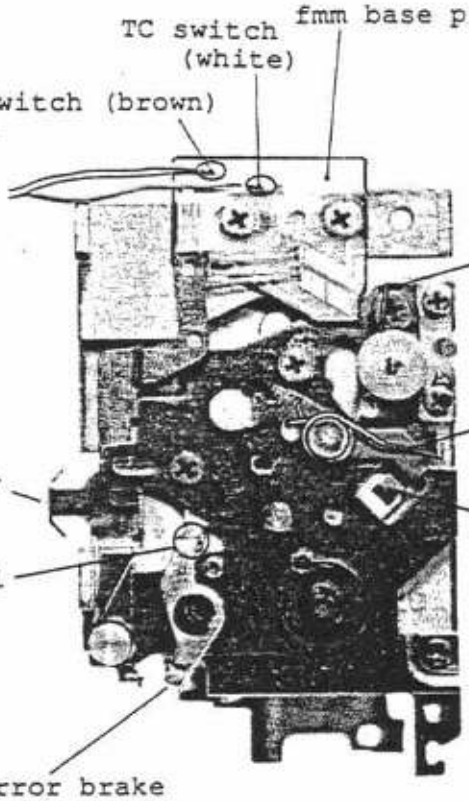
#1048x2

Hook the AF lever spring (#410) on the hook.


B 2208 Mirror unit
G1
225
227A~E
224
G
KE347B
G
226
G2
fo base plate
B5028
1037x2
259
1085
260
261
1010x2
f - fo base plate
254
399
G8181
T
237
B5034
232
284
L base plate unit
TTL SPD holder
B975
B291
990
T
1032
B2201
977
T
1016
T
1015
B 2071
I base plate unit
106
247
144
1087
143
145
148
146
1085
88
1085
Aperture
Mg
1085
149
S
S
S
1029x3
147
B121
1012
5074
S
S
1050x2
T: Lock tight
S: Screw lock (#350)
G: G7100
Filter driving base plate unit
B2974
T
T
1126x3
T
684
T
1023
Spread L2113 on each gear shaft

Mirror box unit

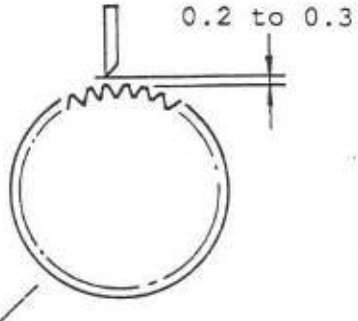
L base plate unit

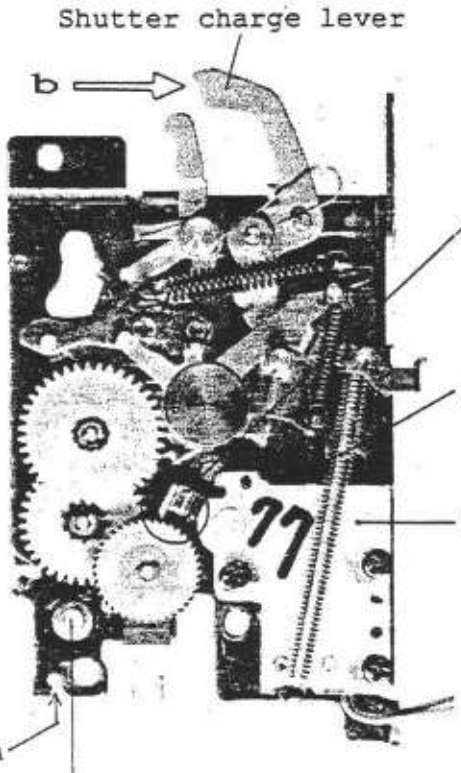


I base plate

— Aperture Mg (See page D23)

Aperture Mg click — Adjust the gap between the click and the ratchet gear.





Push the shutter charge lever in the direction indicated by an arrow b to be shutter charged state.

— Ratchet reset gear (#81)

Screw lock (#350)

#149

Mount on the I base plate by hooking #149 in the hole of #81.

#105

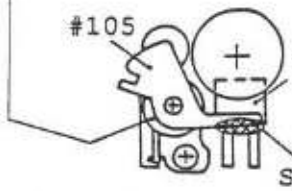
#1012

270°

(Arrow a indicates the hooking position on which one end of the spring (#149) is hooked)

Latchet reset gear (#81)

Mount #105 by rotating #81 around 270° clockwise.



#1012

Mounting mirror unit, I base plate, L base plate

See page D23

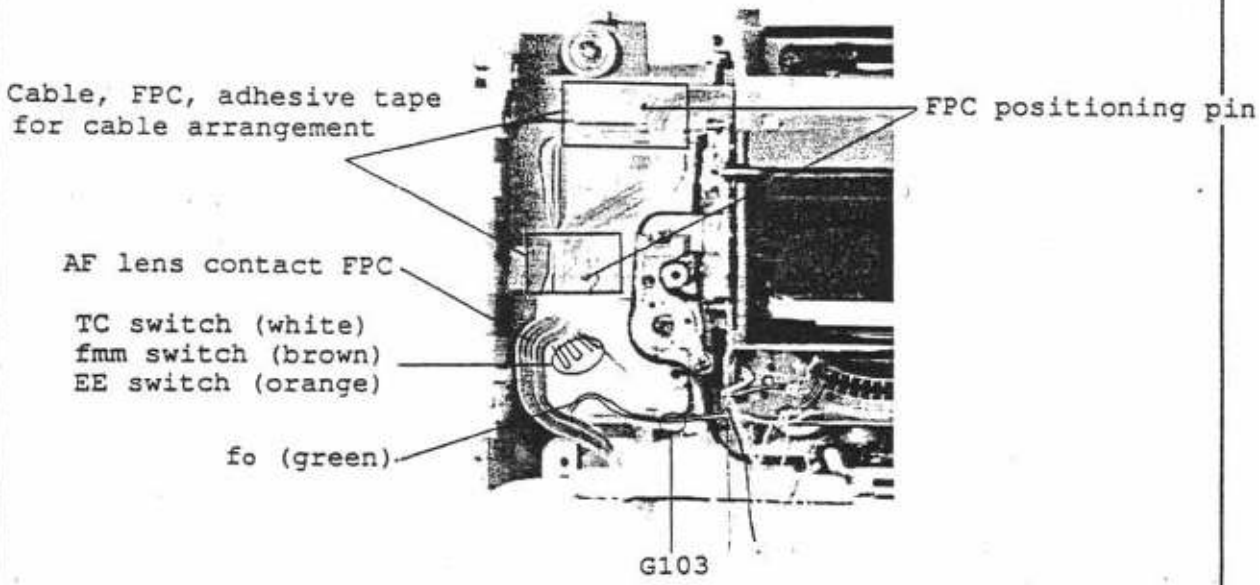
Mounting mirror box, front body

See page D22

Adjust thrust play of mirror unit
Rated value: 0.1 to 0.3
Adjustment washer

1K050-334	0.1
1K050-335	0.05
1K050-336	0.15
1K050-337	0.2
1K050-338	0.3

Cable arrangement



Filter driving base plate, filter unit, TTL SPD unit

See pages D20 to D21

—— Filter unit

Check: Filter mirror holder moves by its own weight when the front body is declined after assembly.

—— Filter driving base plate unit

Check: Check to see if the filters are switchable after assembly.

Seesaw lever

See page D19.

AF mode selector lever unit

See page D19.

Lens release button switch

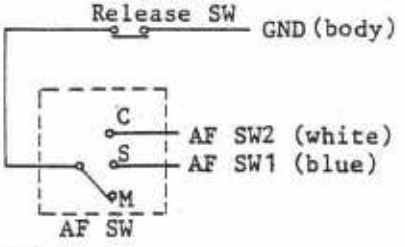
See page D18.

Check AF switch 1, AF switch 2, lens release button switch

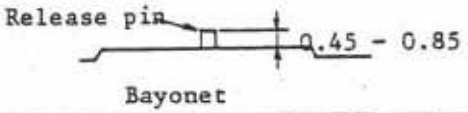
Check continuity of each switch by connecting GND (body) and AF switch 1 (blue), and GND and AF switch 2 (white) using a tester.

(1) AF switch inspection

	AF switch 1 (blue)	AF switch (white)
C mode	off	on
S mode	on	off
M mode	off	off



(2) Lens release button switch inspection
AF switch 1 and AF switch 2 turn off when the lens release pin is within the range of 0.45 to 0.85 from the bayonet ring.



Mirror operation base plate unit

See page D17.

Check preview bottom and mirror up operations

f-fo base plate, f-fo pulley

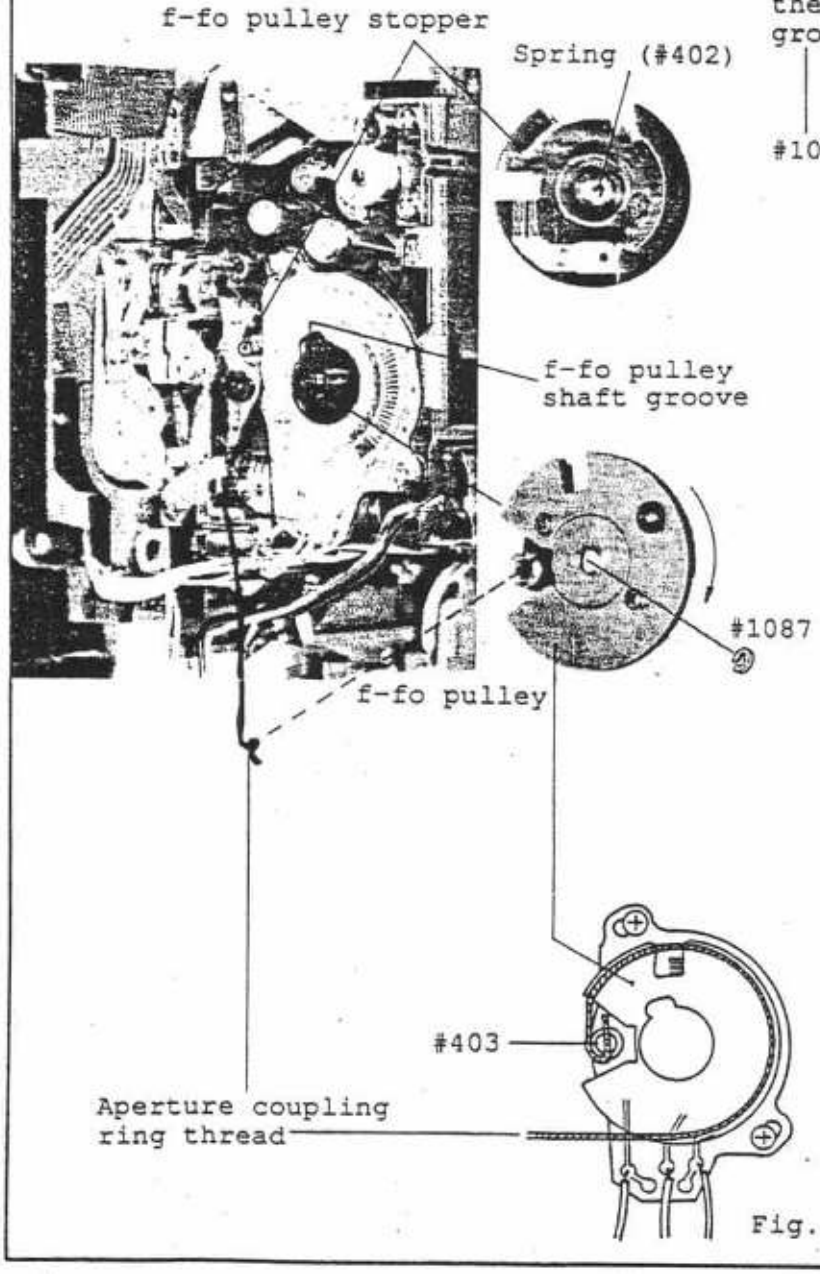
—— f-fo base plate

See page D18.

—— f-fo pulley

Mount by rotating the pulley once clockwise while aligning the f-fo pulley spring (#402) with the f-fo pulley shaft groove.

#1087



Note: Do not damage the plastic mold shaft of the f-fo pulley.

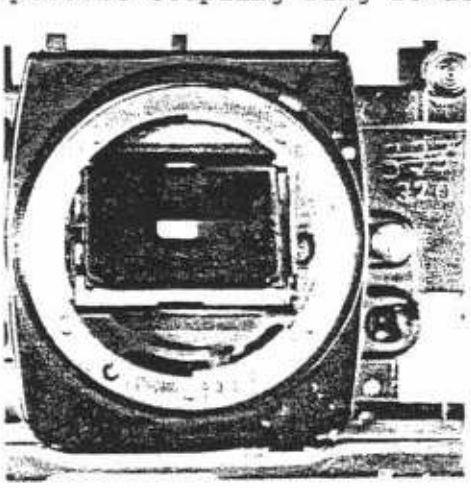
Reel aperture coupling ring thread in the #403 groove. (See figure a)

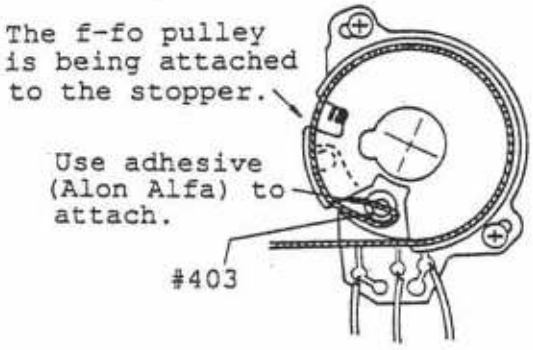
Note:
(1) Thread knot should not be pushed out from the surface of the f-fo base plate.
(2) Aperture coupling ring thread should be hooked in the roller on the AF mode selector base plate.
(3) Aperture coupling ring thread should not be bent.

Fig. a

1) Adjustment of f-fo pulley stop position

Aperture coupling ring is attached to the stopper.





Adjust by rotating #403 so that the aperture coupling ring and the f-fo pulley come into contact with the stopper simultaneously.

2) Adjustment of the f-fo base plate position.

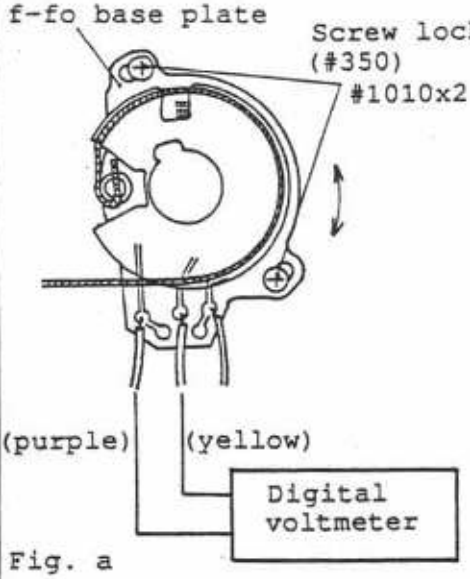


Fig. a

(1) Mount the f-fo tool lens (J18202) on the body.

(2) Set the digital voltmeter (at the resistance measuring range) as shown in Fig. a.

(3) Adjust by rotating the f-fo base plate so that each resistance value can be measured when the f-fo tool lens (J18202) is moved aside as shown in Fig. b.

Resistance value is 624 to 936Ω when the tool lens is moved in the direction indicated by arrow c.
Resistance value is 0Ω when moved in the direction indicated by arrow d.

(4) Fasten screws (#1010x2) and spread screw lock (#350) on them.

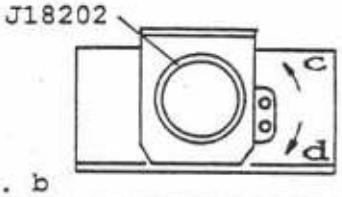
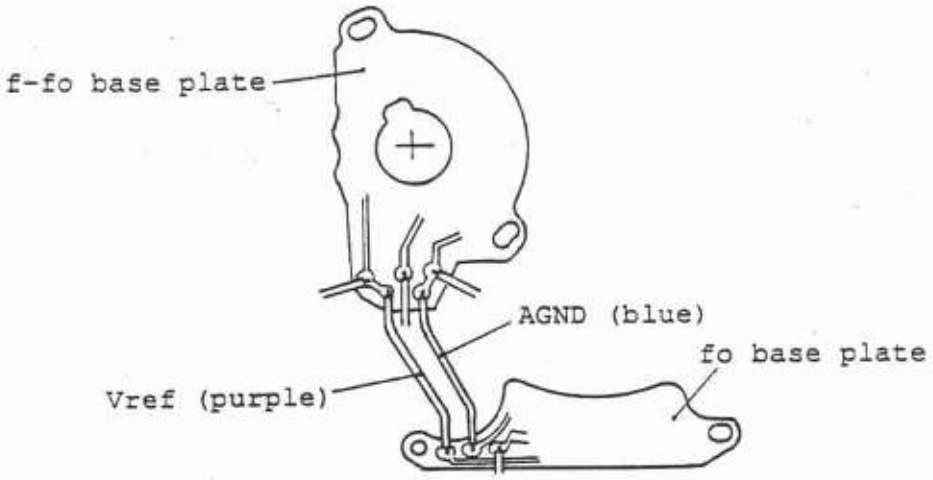


Fig. b

—— Soldering cables

Solder AGND (blue) and Vref (purple) on the f-fo base plate.



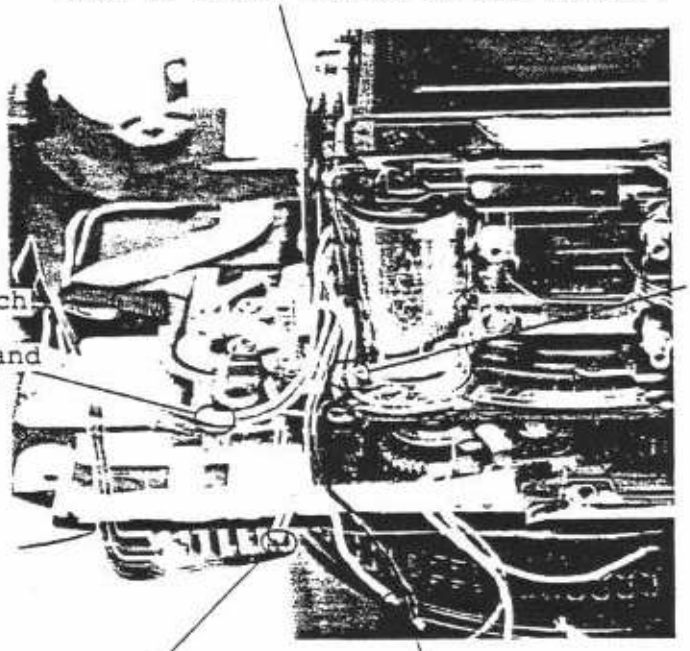
—— When f-fo pulley shaft is damaged.

(1) Remove the f-fo pulley and the f-fo base plate.
(2) Remove the damaged f-fo pulley shaft.
Note: Check to see if there are any broken pieces left in the L base plate.
(3) Mount the f-fo pulley shaft (1K371-359).
(4) Spread adhesive (Alon Alfa) at the portion where the f-fo pulley shaft is mounted.

Lock encoder FPC unit

See page D17.

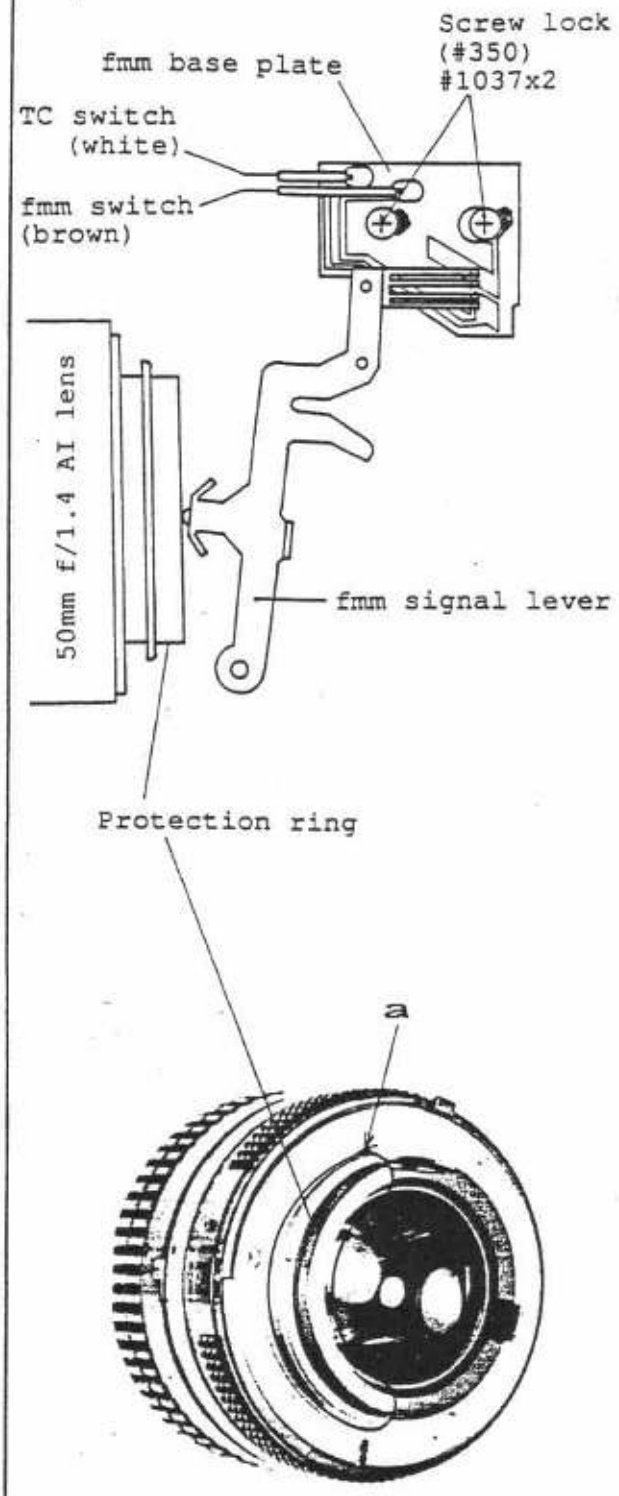
Cable arrangement on the lower part of the L base plate


Hook AF motor cables on the holder.
Use adhesive (G103) to attach Vref (purple), f-fo (yellow) and AGND (blue).
Vref (purple)
AGND (blue)
AF switch 1 (blue)
AF switch 2 (white)
AF motor (red), (black)

AF base plate unit

See pages D15 to D16.

Positioning adjustment of fmm switch



(1) Connect a tester between the TC switch (white) and the body (GND).

(2) Mount the 50mm (f/1.4) AI lens on the body. Do not move any further once the protection ring of the 50mm f/1.4 AI lens (indicated by arrow a) pushes the fmm signal lever.

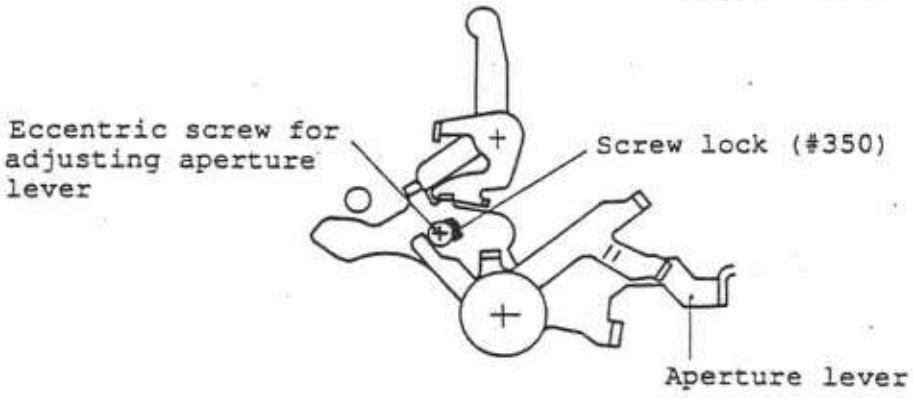
(3) Fasten the fmm base plate at the point when the TC switch is changed from ON to OFF by moving the fmm base plate. Then the fmm signal lever brush should be positioned at the center of the TC switch and the fmm switch patterns.

(4) The fmm switch should be off when the 50mm f/1.4 AI lens is removed.

Note: Correct lens:
50mm f/1.4 AI
(Do not use 50mm f/1.4 AI-S and AF 50mm f/1.4.)

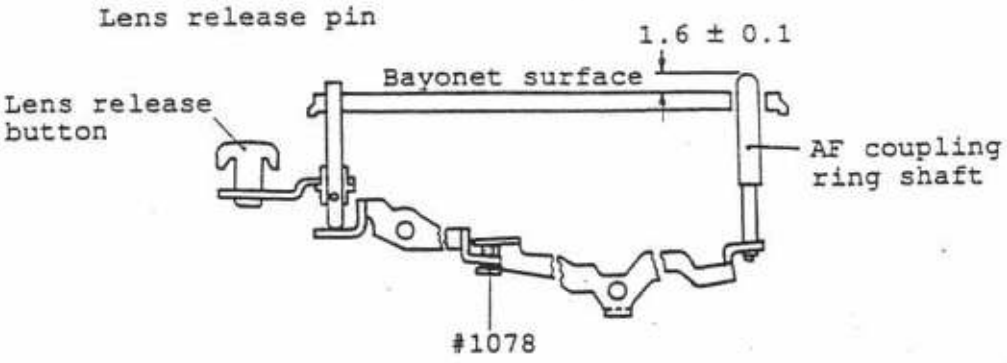
Height adjustment of aperture lever

Rated value: $3.4\ ^{+0.1}_{-0.05}$



Height adjustment of AF coupling ring shaft

Adjust the height by turning the screw (#1078) so that the AF coupling shaft is higher by 1.6 ± 0.1 than the bayonet surface when the lens release button is free in AF-C or AF-S mode.

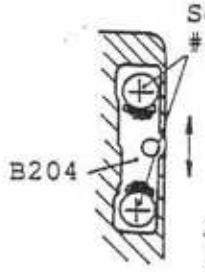


Angle adjustment (45°) of main mirror (G1), sub-mirror (G2)

—— Angle adjustment (45°) of main mirror (G1)

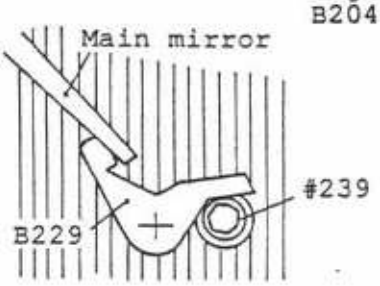
Tool: • J18037 (Optical flat)
• J18038
• Vertical collimator
• Hex key

Rated value:
Horizontal discrepancy;
0±18'
Vertical discrepancy;
0^{+0}_{-10}



Adjustment of horizontal discrepancy

Adjust by moving B204 vertically.



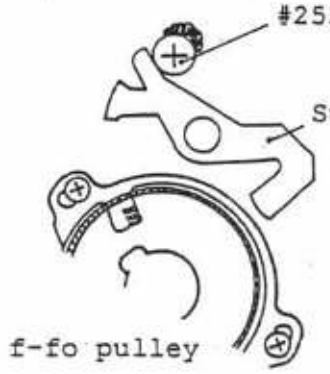
Adjustment of vertical discrepancy

Adjust by rotating #239.

—— Angle adjustment (45°) of sub-mirror (G2)

Tool: •J18196 (determines the angle (45°) of the sub-mirror)
•Vertical collimator

Rated value:
Vertical discrepancy;
5±5

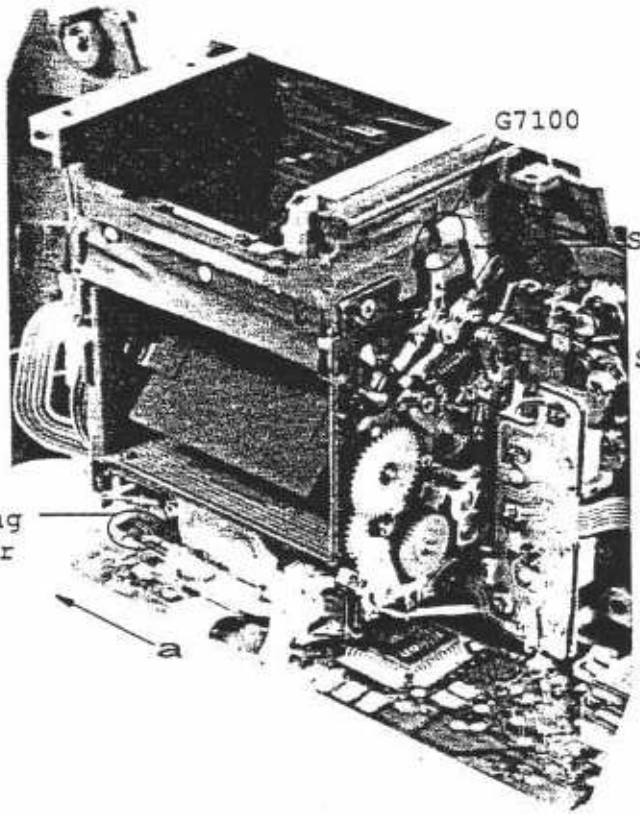


Adjustment of vertical discrepancy

Adjust by rotating #253.

Mounting on front body and back body

—— Preparation for mounting on front body side

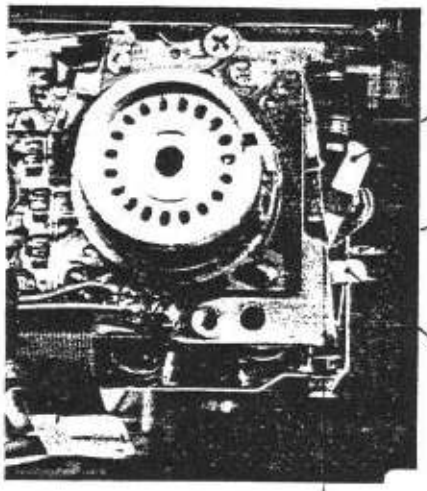


1) Move the mirror down
   - Move the mirror down by pressing the shutter charge lever to the bayonet ring.
   - Spread G7100 on the tip of the shutter charge lever, and start lever.
2) Move aside the filter driving coupling lever to film rewind side or in the direction indicated by arrow a.

Note: Eliminate foreign matter in the filter and AF sensor units by using a blower.

—— Preparation for mounting on back of body

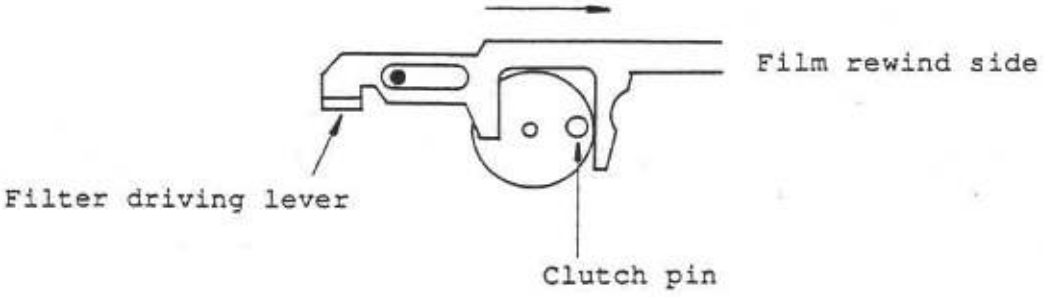
1) The body should be set in the film advance completion state.


Shutter charge lever
Shutter release lever
Shutter release lever should be set to the far back position.
Mirror down lever

Note: Check that the T (time) lever is correctly latched. (See page A27)

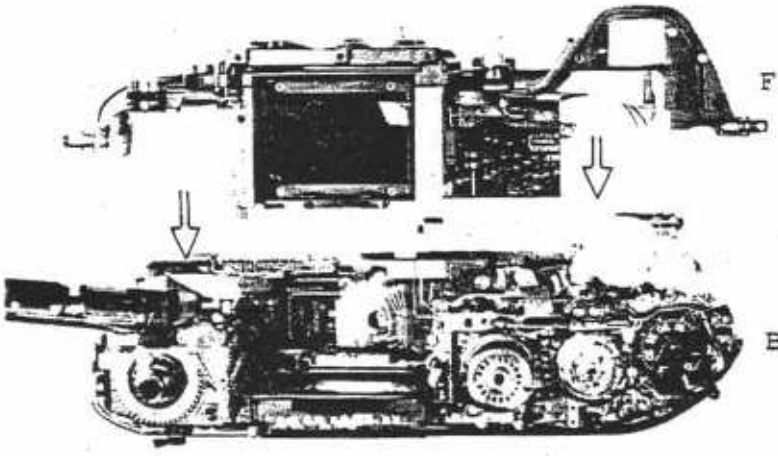
2) Set the shutter speed dial to the T (time) position.

3) Move the filter driving coupling lever to the film rewind side.



* Set the clutch pin at this position and fix the filter driving coupling lever.

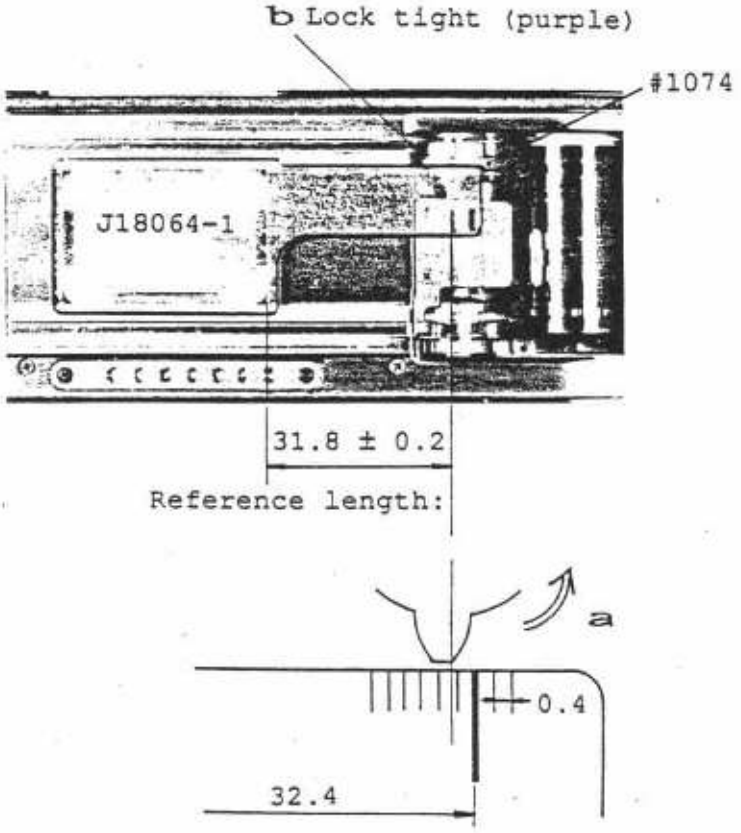
—— Mounting



Assembling: See pages D3 to D5.

Adjustment of film sprocket cogwheel positioning

1) Set the body to the film advance completion state.
2) Unfasten the film sprocket screw (#1074x1).
3) Set the film sprocket cogwheel positioning tool (J18064-1) on the aperture surface.
4) Fasten the film sprocket screw (#1074) temporarily after aligning the right end of the film sprocket cogwheel to the position 31.8. Adjust it further so that the right end of the film sprocket cogwheel will be within the range of 31.8 ± 0.2 when moving the film sprocket in the direction indicated by arrow a.



5) Mount the film sprocket screw (#1074) with lock tight (purple) in the left film sprocket screw hole (indicated by arrow b).
6) Check to see the film sprocket cogwheel position by repeating film advance operation several times.

Adjustment of body back

Same as for F3 and other models.

Adjustment of infinity

Same as for F3 and other models.

AE, AF Accuracy, inspection, and adjustment

—— AE accuracy inspection and adjustment items (following instructions by personal computer)

1. AE accuracy inspection, adjustment

Sub-menu	Inspection, adjustment items
1. F4 + AMP.FD	Spot exposure metering adjustment—> AMP exposure metering ——————>(1)
2. F4	Spot exposure metering adjustment—>(1)
3. AMP.FD	AMP exposure metering adjustment (adjust by mounting on the tool body)
4. F4 + Action FD	Spot exposure metering —> Center-weighted exposure metering—>(1)
5. Action FD	Center-weighted exposure metering (adjust by mounting on the tool body)
(1) —> Adjust M 1/8000 (M 1/4000) ——>	TTL adjustment (Adjust by mounting AMP.FD or Action FD)

2) When main FPC on the F4 body or EEPROM is replaced:

1) Make following adjustment (write AF compensation value into EEPROM) after the inspection of item 1.
—> X BER P adjustment —> ΔZ adjustment —> Hard AGC adjustment

—— AF accuracy inspection, adjustment items (following instructions by personal computer)

Note:
1) When making adjustment of AF accuracy, remove bottom cover, tripod socket (see page D2), bottom FPC screw (#685, #1026, #1038) (see page D6), and set up the bottom FPC unit.

2) When making adjustment, close the viewfinder eyepiece shutter or cover the body with black cloth.

3) When viewfinder is not attached, adjust the ΔZ by aligning the AF inspection chart and target zone on the focusing screen.

4) It is not required to attach AF sensor adjustment screws (x 3) with screw lock.

1) AF accuracy inspection (adjustment when disassembling AF sensor unit)	2) AF Sensor (when displacing)	3) Main FPC of F4 body (when displacing main FPC or EEPROM)
X BER P inspection and adjustment	X BER P adjutment	After AE adjustment, write following compensation value into EEPROM
YAW inspection and adjustment	YAW djustment	
PITCH inspection and adjustment	PITCH adjustment	X BER P adjustment
ΔZ inspection and adjustment	ΔZ adjustment	ΔZ adjustment
	Hard AGC adjustment	Hard AGC adjustment

ELECTRIC CIRCUIT

(1) BLOCK DIAGRAM FOR POWER SUPPLY ---------- E1

(2) WIRING DIAGRAM ---------- E3

(3) CIRCUIT DIAGRAM ---------- E4

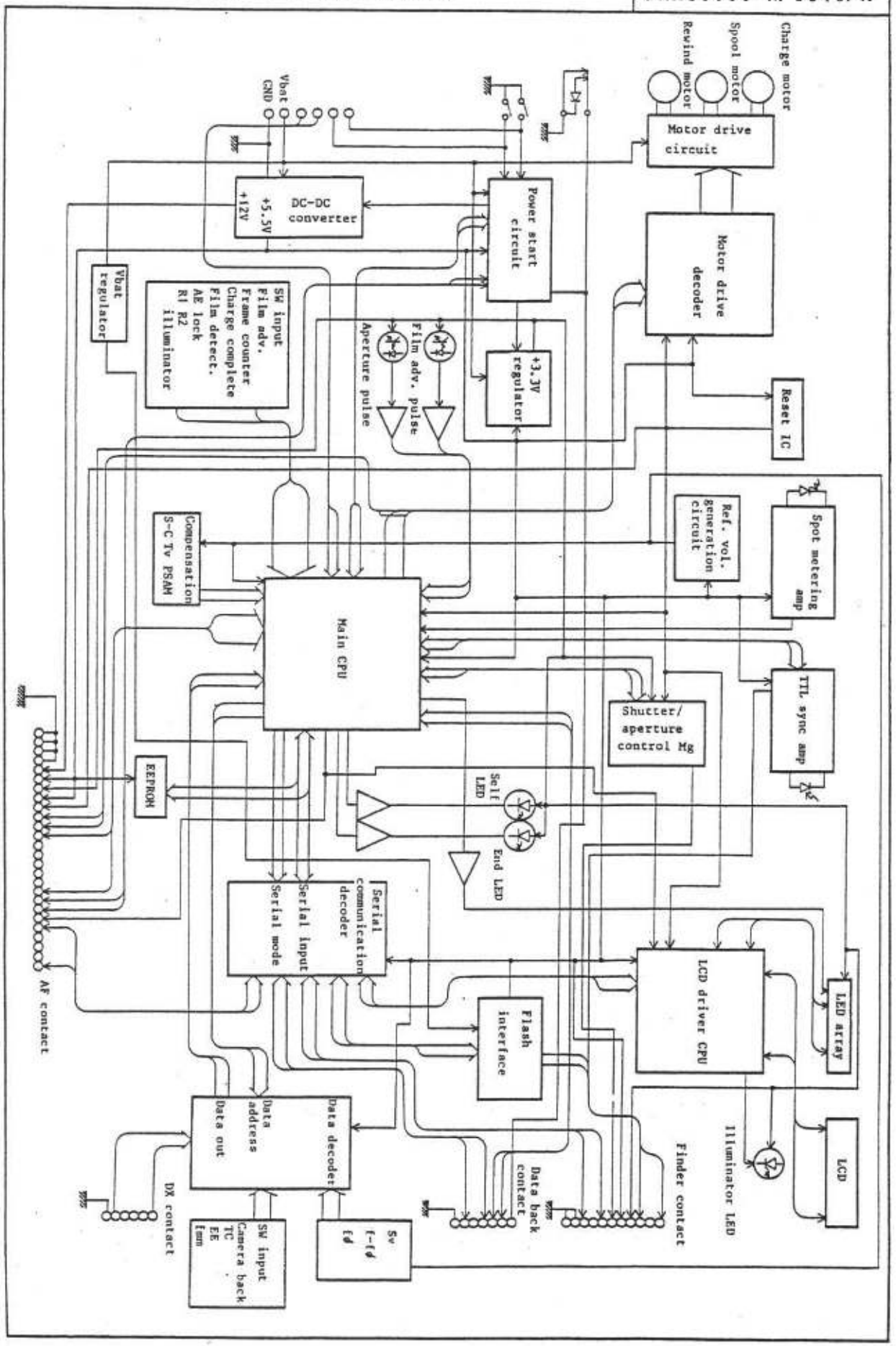
(4) IC TERMINALS ---------- E5

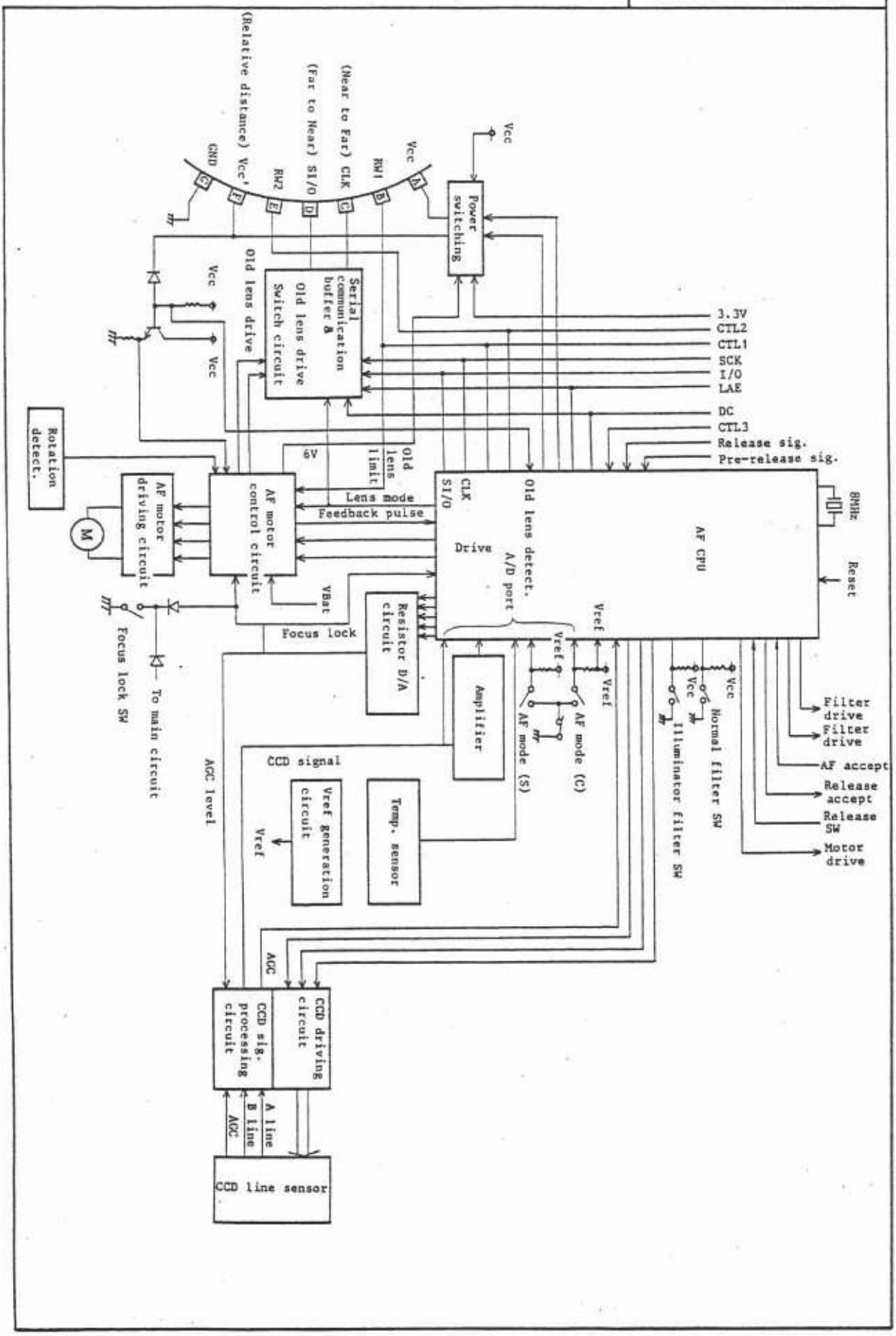
(5) CHECKING LANDS ---------- E12

(6) MAIN FPC ELECTRIC PARTS, TERMINALS & CHECKING LANDS -------- E19

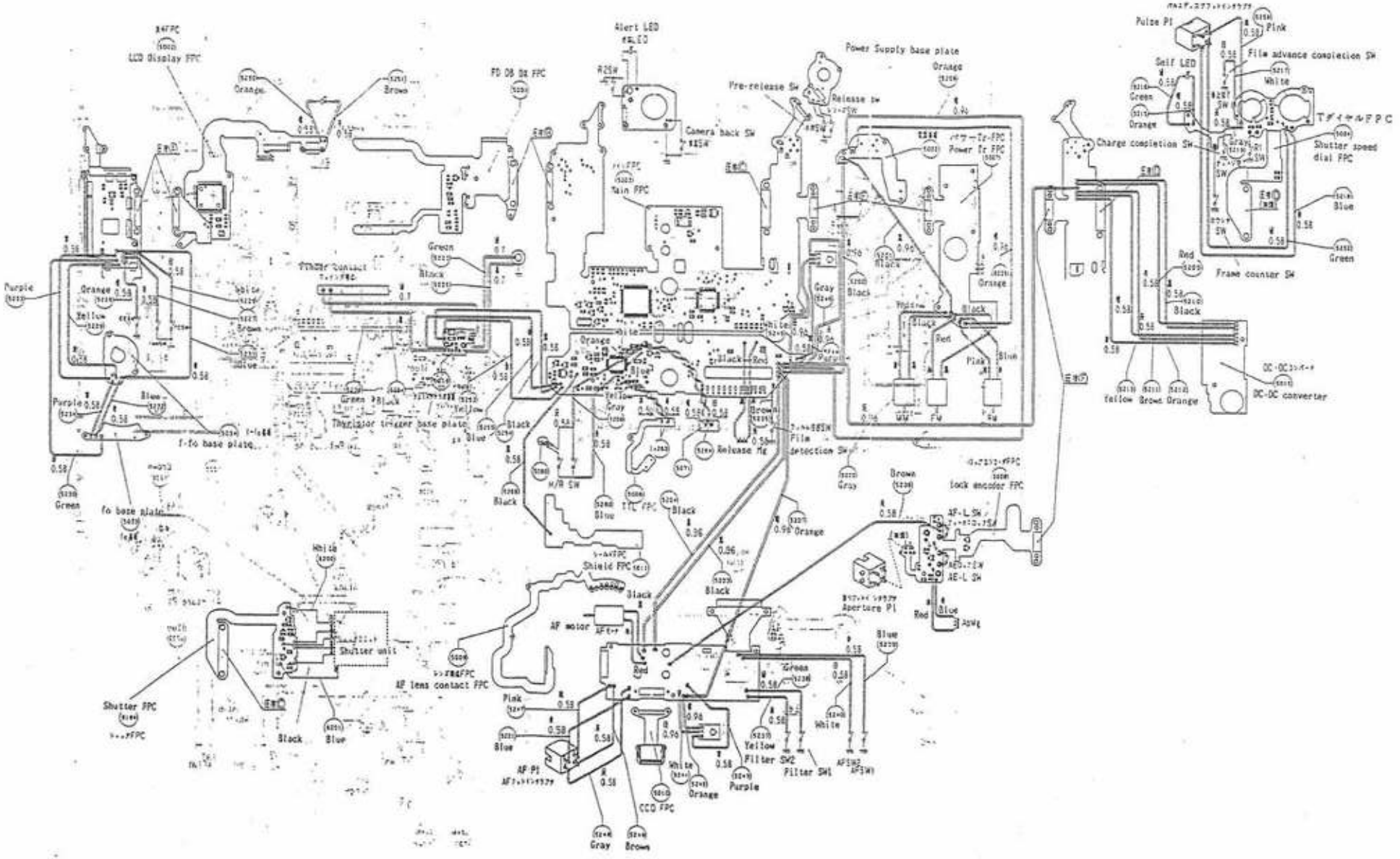
(1) BLOCK DIAGRAM FOR POWER SUPPLY

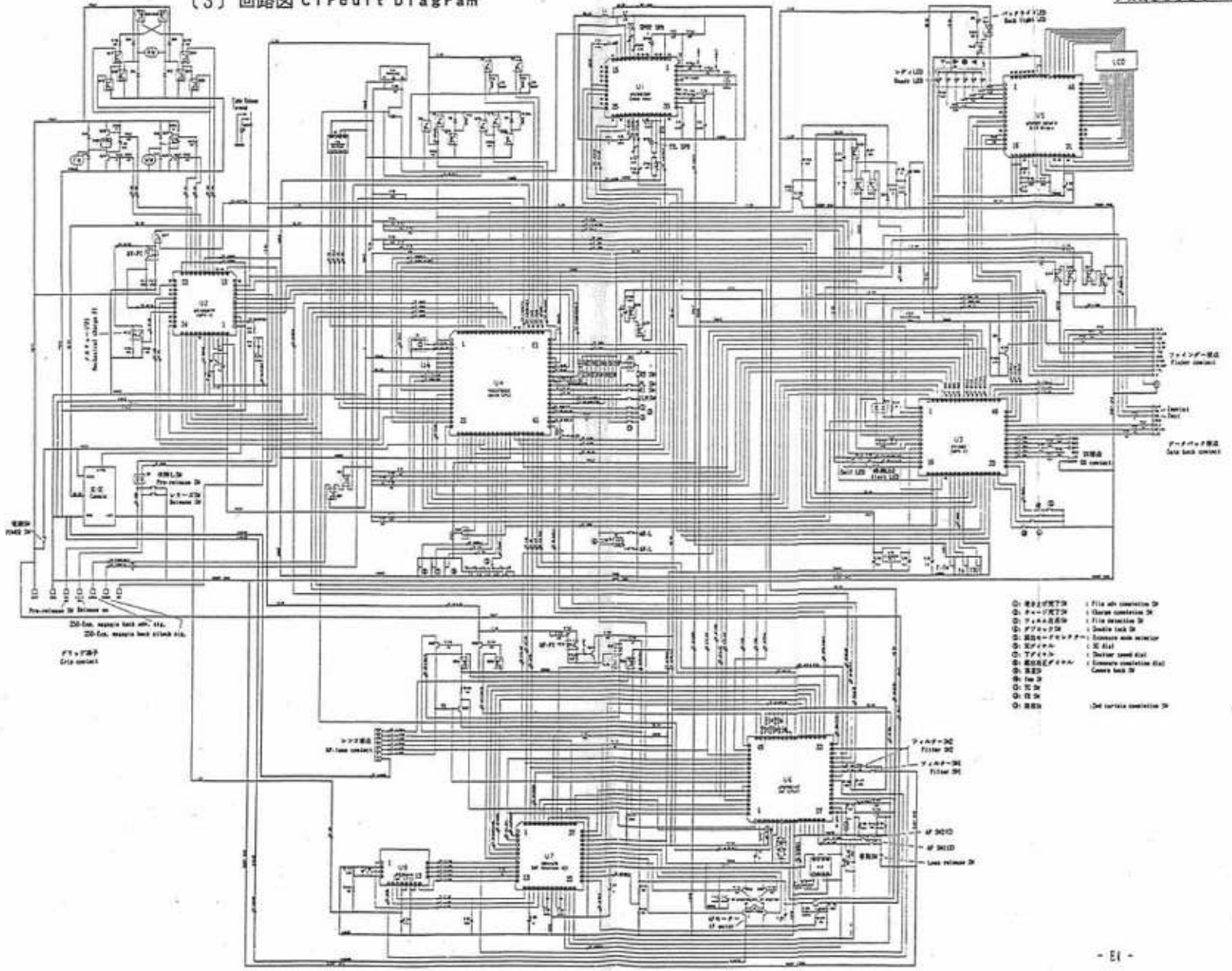
FAA23051-R. 3248. A



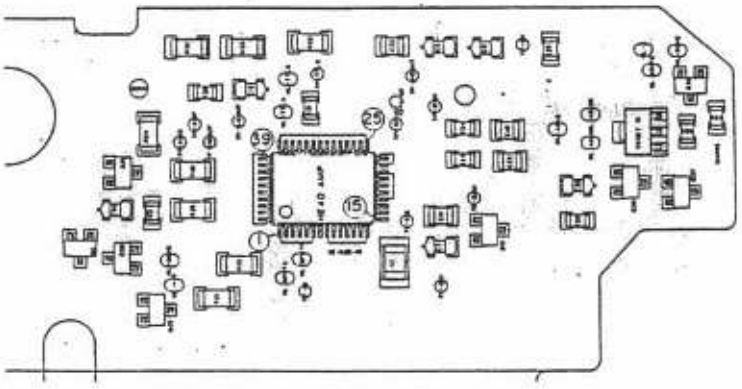

(Relative distance) Vcc'
GND
(Far to Near) SI/O
(Near to Far) CLK
RW2
RW1
Vcc
Power switching
Old lens drive
Old lens drive Switch circuit
Serial communication buffer &
3.3V
CTL2
CTL1
SCK
I/O
LAE
DC
CTL3
Release sig.
Pre-release sig.
Rotation detect.
AF motor driving circuit
AF motor control circuit
6V
Old lens limit
Lens mode
Feedback pulse
VBat
Focus lock
Focus lock SW
To main circuit
Resistor D/A circuit
CLK
SI/O
Drive
Old lens detect.
A/D port
AF CPU
8MHz
Reset
Vref
Amplifier
AF mode (S)
AF mode (C)
Vcc
Illuminator filter SW
Normal filter SW
Filter drive
Filter drive
AF accept
Release accept
Release SW
Motor drive
CCD signal
AGC level
Vref generation circuit
Temp. sensor
AGC
CCD sig. processing circuit
CCD driving circuit
A line
B line
AGC
CCD line sensor

〔2〕実体配線図 Wiring Diagram





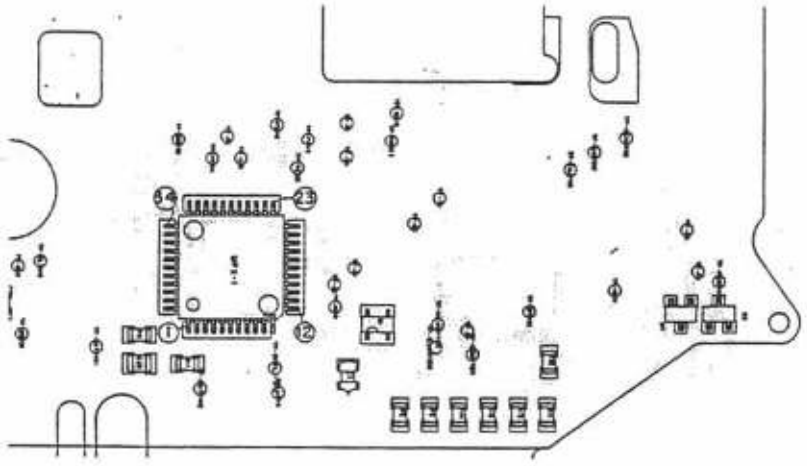
U 1
M51063GP
(Head Amp)



Pin	Terminal
1	N. C
2	Ref vol A7 output
3	N. C
4	N. C
5	Spot SPD input
6	N. C
7	N. C
8	N. C
9	A3 off-set adj. 1
10	A3 off-set adj. 2
11	Vcc
12	Reset output
13	Reset delay C
14	N. C
15	N. C
16	N. C
17	N. C
18	N. C
19	GND
20	Discharging (DA1)
21	Charging (DA2)
22	N. C
23	N. C
24	Flash terminal
25	N. C
26	Integration start signal
27	N. C
28	Flash stop sig 1
29	Flash integration condenser
30	A15 output
31	A15 (-) input
32	A15 (+) input
33	N. C
34	Sync SPD K
35	Sync SPD A

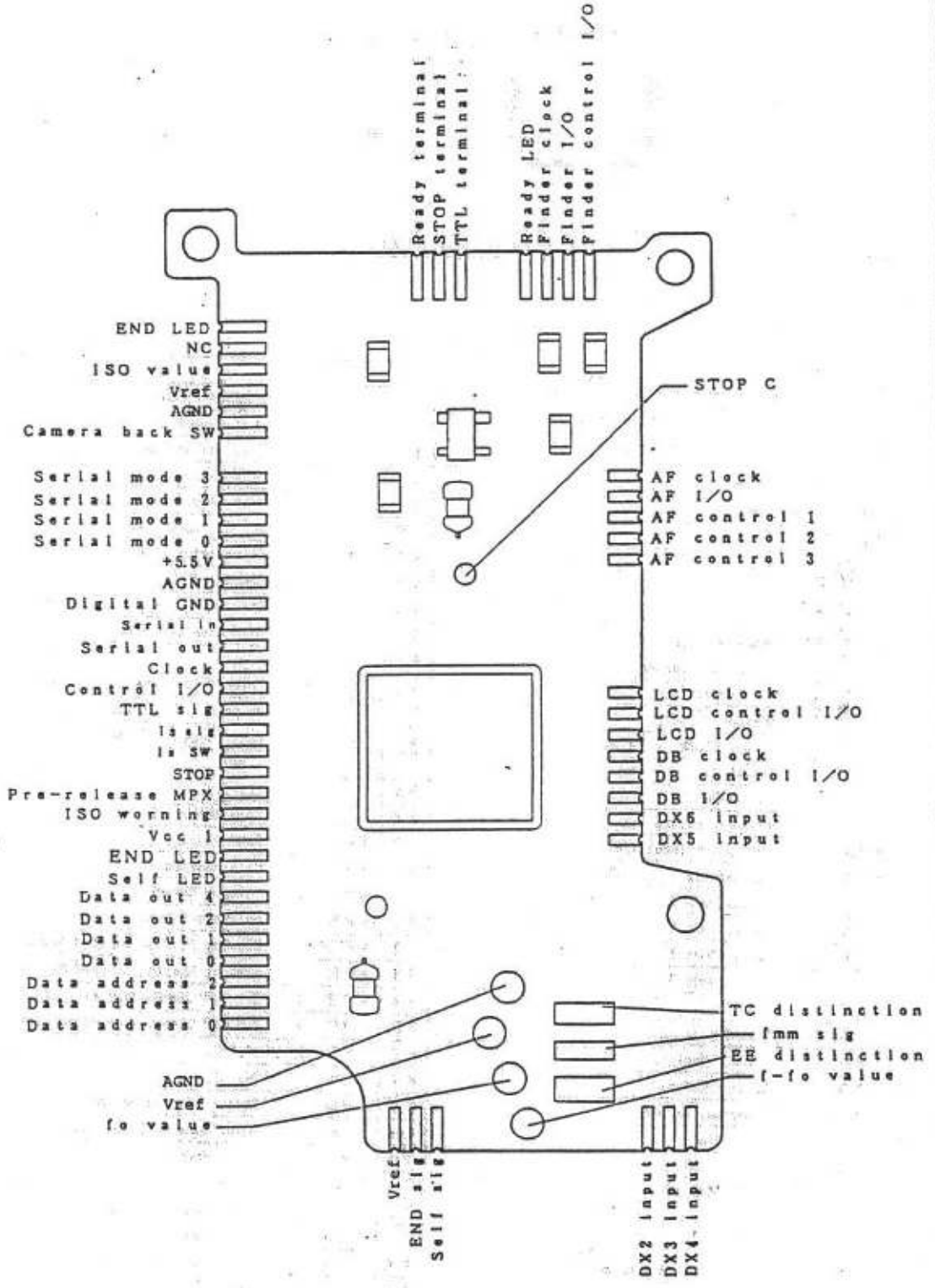
Pin	Terminal
36	A12 output 2
37	A16 output
38	N. C
39	A16 input
40	Vref (A11 output)
41	A11 input
42	A10 (+) input 2
43	N. C
44	GND
45	A10 (+) input 1
46	A10 output
47	A10 (-) input
48	A9 output

U 2
M51068FP
(MPX-1)

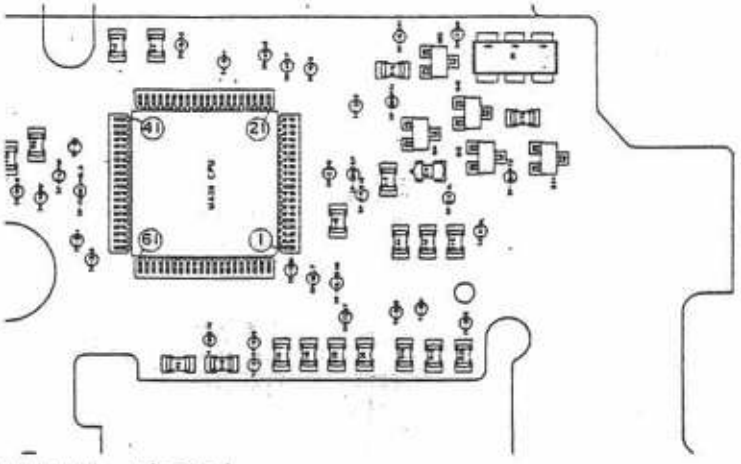


Pin	Name	Pin	Name
1	Power GND	36	Motor mode 2
2	Battery Check	37	Motor mode 3
3	DC-DC converter control	38	NC
4	Power hold	39	Digital GND
5	AF pre-release sig	40	+3.3V output
6	Pre-release sig	41	+3.3V limiter
7	Release sig	42	+3.3V base
8	Pre-release SW	43	+5.5V
9	Pre-release MPX	44	Vcc 1
10	Pre-release/release sig		
11	NC		
12	Release SW		
13	NC		
14	NC		
15	Rewind motor drive 1		
16	Rewind motor drive 2		
17	Analog GND		
18	Spool motor brake		
19	Charge motor brake		
20	Spool motor drive		
21	Charge motor drive		
22	Power GND		
23	NC		
24	Vbat		
25	NC		
26	NC		
27	Apreture PINT output		
28	Mech pulse output		
29	Aperture PINT input		
30	Mech pulse PINT input		
31	NC		
32	NC		
33	Chip enable		
34	Motor mode 0		
35	Motor mode 1		

U 3
C51062
(MPX-2)



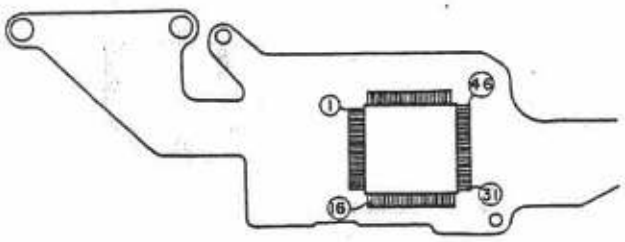
U 4
HD637B05Z
(MAIN CPU)



Note) * is output signal

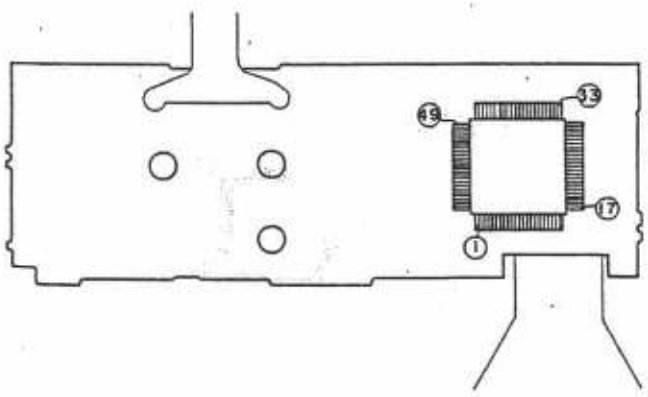
Pin	NAME	Fuuction	Pin	NAME	Fuuction
1	RESET	Reset IN	41	PH 7	Release Accept
2	XTAL	XTAL	42	PJ 4	AF Accept
3	EXTAL	Clock IN	43	PJ 3	Film detection SW
4	MP1	Vcc	44	PJ 2	Mech Charge Completion SW
5	MP0	GND	45	PJ 1	Film Adv. Completion SW
6	NMI	Vcc	46	PJ 0	A. E. Lock SW
7	STBY	Vcc	47	PF 7	Illuminator SW
8	Vcc	Vcc	48	PF 6	Rewind SW (R2 SW)
9	PC 7	TTL Signal (L Out Only)	49	PF 5	Sprocket SW (R1 SW)
10	PC 6	Ready Monitor ⚡	50	PF 4	Film Counter SW
11	PC 5	Photo Interrupter Input	51	PF 3	
12	PC 4	For inspection	52	PF 2	Power Hold Signal
13	PC 3	Control I/O	53	PF 1	Release SW Signal
14	PC 2	Serial Clock (SCLK)	54	PF 0	Pre-release SW sig
15	PC 1	Serial In (Rx)	55	MP2	GND
16	PC 0	Serial Out (Tx)	56	Vss	GND
17	*PA 0	Display erasure sig	57	*PE 7	Data Address 2
18	*PA 1	Mech pulse input (INT 1)	58	*PE 6	Data Address 1
19	*PA 2	Imprint sig (INT 2)	59	*PE 5	Data Address 0
20	*PA 3	Serial Mode 0	60	*PE 4	Release Magnet
21	*PA 4	Serial Mode 1	61	*PE 3	Aperture Magnet
22	*PA 5	Serial Mode 2	62	*PE 2	Closing Shutter Curtain Magnet
23	*PA 6	Serial Mode 3	63	*PE 1	Opening Shuttal Curtain Magnet
24	AVcc	Vref	64	*PE 0	250-EXP Camera back adv. sig
25	PD 0	Metering output	65	PG 0	250-EXP Camera back Attach sig
26	PD 1	D/A Monitor	66	PG 1	N. C.
27	PD 2	Battery Check	67	PG 2	N. C.
28	PD 3	Compensation Dial	68	PG 3	Photo interrupter Control
29	PD 4	TV dial	69	PG 4	Motor Mode 0 (L out only)
30	PD 5	S-C dial	70	PG 5	Motor Mode 1 (L out only)
31	PD 6	AE MODE (PSAM)	71	PG 6	Motor Mode 2 (L out only)
32	PD 7	ISO, fo, f-fo	72	PG 7	Motor Mode 3 (L out only)
33	AVss	Analog Gnd	73	PB 0	X Accept (L out only)
34	PII 0	D/A 1 (L Out Only)	74	PB 1	CE (EE-PROM)
35	PII 1	D/A 2 (L Out Only)	75	PB 2	Data Out 0
36	PII 2	CTL 3 (L Out Only)	76	PB 3	Data Out 1
37	PII 3	L. A. E. (L Out Only)	77	PB 4	Data Out 2
38	PII 4	D. C. (L Out Only)	78	PB 5	END Display (L Out Only)
39	PII 5	Lens Drive Signal	79	PB 6	Self Display (L Out Only)
40	PII 6	Filter Signal	80	PB 7	ISO Warning (L Out Only)

U 5
M50922
(LCD Driver)



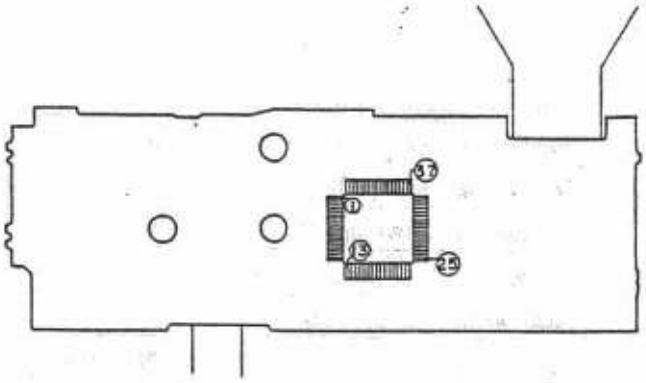
Pin	Name	Pin	Name
1	Back light LED	36	SEG 4
2	Redy LED	37	SEG 5
3	Rear focus LED	38	SEG 6
4	In-focus LED	39	SEG 7
5	Front focus LED	40	SEG 8
6	Exp. compenstion LED	41	SEG 9
7	NC	42	SEG 10
8	Display erasure	43	SEG 11
9	LC I/O	44	SEG 12
10	Clock	45	SEG 13
11	NC	46	SEG 14
12	I/O	47	SEG 15
13	Xin	48	SEG 16
14	Xout	49	SEG 17
15	Reset	50	SEG 18
16	Vdd	51	SEG 19
17	Analog GND	52	SEG 20
18	Vdd	53	Vss
19	NC	54	Vss
20	VLCD 3	55	
21	VLCD 2	56	
22	VLCD 1	57	
23	Vss	58	
24	COM 0	59	
25	COM 1	60	
26	NC	61	
27	NC	62	
28	Vdd	63	
29	NC	64	
30	SEG 0		
31	SEG 1		
32	SEG 2		
33	SEG 3		
34	NC		
35	NC		

U 6
UPD78C14A
(AF CPU)



Pin	Name	Pin	Name
1	Lens mode	36	Store mode
2	NMI	37	Store control
3	INT1	38	6VC
4	MODE 1	39	L. D
5	RESET	40	STOP
6	MODE 0	41	Vdd
7	X2	42	D/A
8	X1	43	D/A
9	Vss	44	D/A
10	AVss	45	D/A
11	AN0	46	D/A
12	AN1	47	3V ON/OFF
13	AN2	48	Filter drive
14	AN3	49	Filter drive
15	AN4	50	R. sig
16	AN5	51	CTL2
17	AN6	52	Focus lock
18	AN7	53	LAE
19	Ref voltage	54	Driection control
20	AVdd	55	A/D sync
21	RD	56	CTL1
22	WR	57	Lens detection
23	ALE	58	Tx
24	φC	59	Rx
25	Spare	60	SCK
26	Filter SW1	61	INT2
27	Filter SW2	62	TO
28	Release SW sig	63	CI
29	AF accept	64	5V ON/OFF
30	Pre-release sig		
31	Sensor gain switch		
32	6V external source		
33	Release accept		
34	FAR drive		
35	NEAR drive		

U 7
MB4426
(AF interface IC)



Pin	Name	Pin	Name
1	Reset	36	Data receive
2	Lens mode	37	Serial clock input
3	Focus lock	38	Serial clock output
4	Store control	39	Relative pulse output
5	Store mode	40	Relative pulse input
6	NEAR drive	41	Relative pulse input
7	FAR drive	42	Limit
8	ϕRB	43	GND
9	ϕRA	44	Clock input
10	ϕC	45	Hard AGC
11	ϕCG	46	A/D sync output
12	ϕTG	47	Direction control
13	AGC	48	LAE
14	Hold		
15	CCD A		
16	CCD B		
17	A inversion input		
18	A input		
19	GND		
20	B inversion input		
21	B input		
22	A. B output		
23	AGC level		
24	Ref. voltage		
25	6V control output		
26	6V monitor		
27	6V control		
28	Vcc		
29	Motor drive 1		
30	Motor drive 1'		
31	Motor drive 2		
32	Motor drive 2'		
33	Vdd		
34	Digital GND		
35	Data transformer		

〔5〕 CHECKING LANDS (1)

No.	Name	Function
1	WL-+3.3V1	Q1 collector (3.3V generated)
2	WL-+3.3V2	Soldering terminal for release Mg positive side
3	WL-XGND	GND for TRIAC base plate
4	WL-AGND	Solderong terminal for analog GND
5	WL-DGND	Soldering terminal for digital GND
6	WL-FILM	Soldering terminal for film detection SW
7	WL-H/R	Soldering terminal for release contact wire
8	WL-Q1B	Lead wire for Q1 base
9	WL-RLSMG	Soldering terminal for release Mg lead wire
10	WL-SPOTA	Soldering terminal for spot SPD anode lead wire
11	WL-SPOTK	Soldering terminal for spot SPD cathode lead wire
12	WL-XGATE	Soldering terminal for TRIAC gate lead wire
13	WL-TTLA	Soldering terminal for TTL SPD anode lead wire
14	WL-TTLK	Soldering terminal for TTL SPD cathode lead wire
15	WL-X	Soldering terminal for TRIAC gate lead wire
16	TP-+5.5V1	+5. 5V
17	TP-1MG	Opening curtain Mg driving signal
18	TP-2MG	Closing curtain Mg driving signal
19	TP-A10M	Metering last step Amp. - Input
20	TP-A100UT	Metering Amp. Output
21	TP-A10P	Metering last step Amp. + Output
22	TP-A11	A/D ref. voltage Amp. - Input
23	TP-A150UT	TTL ISO Amp. Output
24	TP-A160UT	A/D monitor Amp. Output
25	TP-A18	Reset delay condenser terminal
26	TP-A5V	Analog 5.5V
27	TP-A9	Metering A9 Amp. Output
28	TP-AFABLE1	AF permission signal 1
29	TP-AFABLE2	AF permission signal 2
30	TP-AFCLK	Clock for AF communication
31	TP-AFCTL1	AF control 1
32	TP-AFCTL2	AF control 2
33	TP-AFCTL3	AF control 3
34	TP-AFHSIG	AF pre-release signal
35	TP-AFI/O	AF I/O
36	TP-AGND	Analog GND
37	TP-AIS	Aperture pulse output

CHECKING LANDS (2)

No.	Name	Function
38	TP-APMG1	Aperture Mg driving signal 1
39	TP-APMG2	Aperture Mg driving signal 2
40	TP-AVSS	Metering Amp. analog GND
41	TP-BACK	Camera back SW
42	TP-BATCHK1	Battery check 1
43	TP-BATCHK2	Battery check 2
44	TP-CE	EEPROM chip enable
45	TP-CI/O	Control I/O
46	TP-CLK	CPU clock
47	TP-COUNTER	Counter SW
48	TP-D/A1	D/A conversion control 1
49	TP-D/A2	D/A conversion control 2
50	TP-DA0	Data address 0
51	TP-DA1	Data address 1
52	TP-DA2	Data address 2
53	TP-DBWRT1	Data back imprint signal 1
54	TP-DBWRT2	Data back imprint signal 2
55	TP-DC	AF data command
56	TP-DGND1	Digital GND 1
57	TP-DGND2	Digital GND 2
58	TP-DISPLAYOFF	Display erasure signal
59	TP-DO0	Data Out 0
60	TP-DO1	Data Out 1
61	TP-DO2	Data Out 2
62	TP-DO4	Data Out 4
63	TP-DX2	DX contact 2
64	TP-DX3	DX contact 3
65	TP-DX4	DX contact 4
66	TP-DX5	DX contact 5
67	TP-DX6	DX contact 6
68	TP-EXTAL	Main CPU oscillator 1
69	TP-FBDRIVE1	Magazine back advance signal 1
70	TP-FBDRIVE2	Magazine back advance signal 2
71	TP-FBSET1	Magazine back attached signal 1
72	TP-FBSET2	Magazine back attached signal 2
73	TP-FCI/O	Finder control I/O
74	TP-FD3V	3V for finder

CHECKING LANDS (3)

No.	Name	Function
75	TP-FDCLK	Finder clock
76	TP-FDI/O	Finder I/O
77	TP-FILMEND	Film end signal
78	TP-FILMENDLED	Film end display LED cathode
79	TP-FILTER	Reserve
80	TP-HOSEI	Compensation dial output
81	TP-HSIG	Pre-release signal
82	TP-HSW	Pre-release SW
83	TP-ICON	TTL sync. integration condenser
84	TP-ILLUMISW	LCD back light SW
85	TP-ISO1	ISO warning
86	TP-ISO2	ISO dial output
87	TP-ISSIG	Is signal
88	TP-ISSW	Is SW output
89	TP-LAE	Lens access enable signal
90	TP-LCDCLK	Clock for LCD driving CPU
91	TP-LCDI/O	I/O for LCD driving CPU
92	TP-LCI/O	LCD driving CPU control I/O
93	TP-LD	Lens drive signal
94	TP-MAKISW	Film advance SW
95	TP-MCHARGE	Charging SW
96	TP-MEAS	Metering output
97	TP-MEMORYSW	AE lock SW
98	TP-MM0	Motor mode 0
99	TP-MM1	Motor mode 1
100	TP-MM2	Motor mode 2
101	TP-MM3	Motor mode 3
102	TP-N1	Charge motor brake signal
103	TP-N2	Spool motor brake signal
104	TP-N3	Rewind motor control signal 1
105	TP-N4	Rewind motor control signal 2
106	TP-P1	Charge motor driving signal
107	TP-P2	Spool motor driving signal
108	TP-PC	Mech. pulse output
109	TP-PC3V	3.3V for aperture & advance PINT
110	TP-PCCTR	3.3V control for PINT
111	TP-PCOA	Aperture pulse input

CHECKING LANDS (4)

No.	Name	Function
112	TP-PCOB	Mech. pulse input
113	TP-PGND	GND for power
114	TP-POWERHOLD	Power-hold signal
115	TP-PSAM	Mode dial output
116	TP-R1	R1 SW
117	TP-R2	R2 SW
118	TP-RESET	Reset
119	TP-RLSABLE	Release permission
120	TP-RLSMG	Release Mg driving signal
121	TP-RSIG	Release signal
122	TP-RSW	Release SW
123	TP-RX	Serial In
124	TP-SBREADY	Speedlight Ready
125	TP-SBSTBY	Ready LED cathode
126	TP-SBSTOP	Speedlight stop
127	TP-SBTTL	Speedlight TTL
128	TP-SC	S-C dial output
129	TP-SELF	Self-timer signal
130	TP-SELFLED	Self-timer LED cathode
131	TP-SM0	Serial mode 0
132	TP-SM1	Serial mode 1
133	TP-SM2	Serial mode 2
134	TP-SM3	Serial mode 3
135	TP-STOP	Flash stop sinal
136	TP-TAJYU1	Not in use
137	TP-TAJYU2	Not in use
138	TP-TEST	Data back inspection terminal
139	TP-TTLG	TTL ISO Amp. Input
140	TP-TTLSIG	TTL signal
141	TP-TV	Tv dial output
142	TP-TX	Serial Out
143	TP-VREF	A/D ref. voltage
144	TP-XTAL	Main CPU oscillator 2
145	AS-1MG	Opening curtain Mg press-contact terminal
146	AS-2MG	Closing curtain Mg press-contact terminal
147	AS-AF12V	12V for CDD
148	AS-AF3V	3.3V for AF

CHECKING LANDS (5)

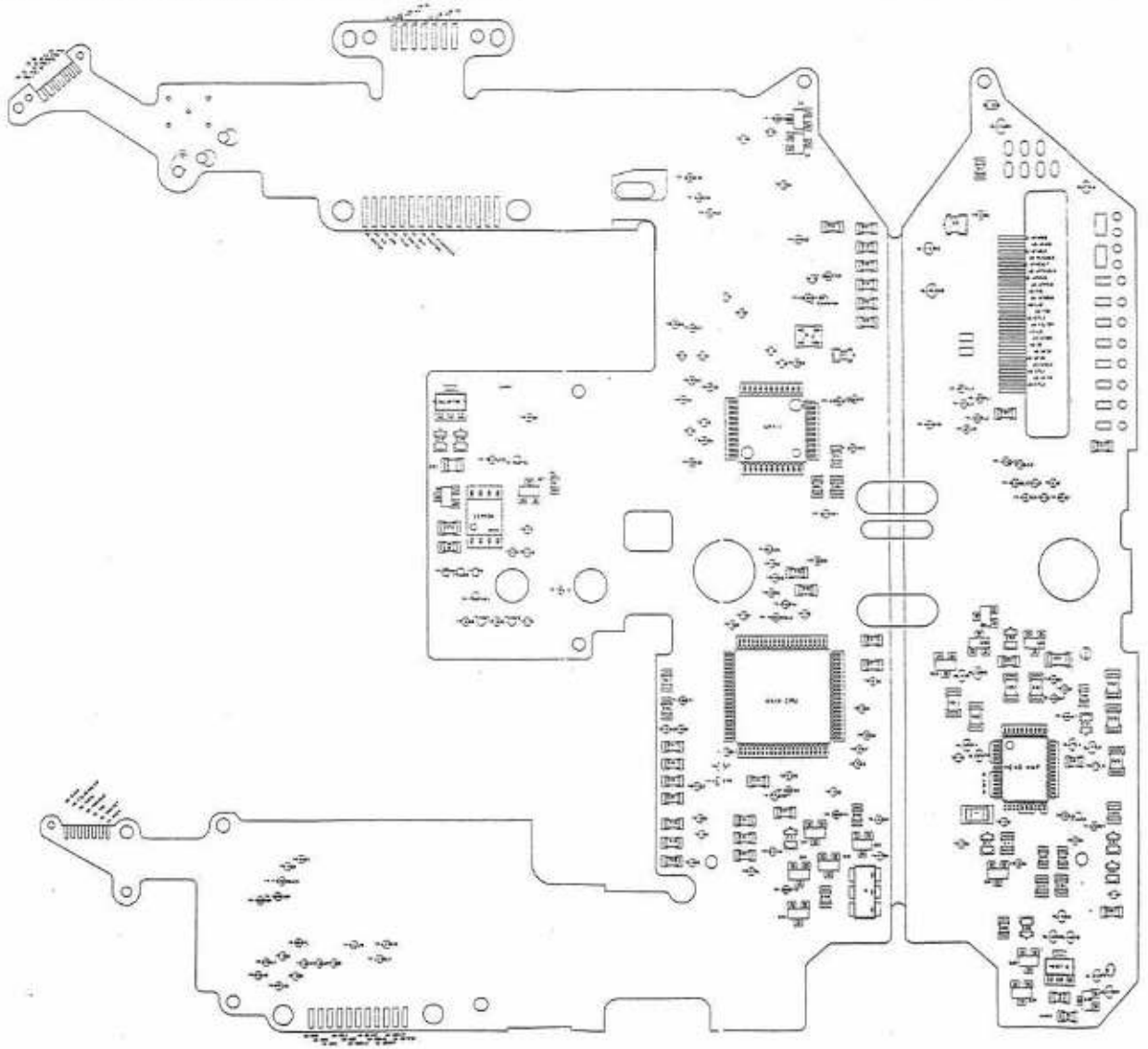
No.	Name	Function
149	AS-AFA5V	Analog 5.5V for AF
150	AS-AFABLE	AF permission
151	AS-AFAGND	Analog GND for AF
152	AS-AFCLK	Clock AF
153	AS-AFD5V	Digital 5.5V for AF
154	AS-AFDGND	Digital GND for AF
155	AS-AFHSIG	AF pre-release signal
156	AS-AFI/O	I/O for AF
157	AS-AFRESET	Reset for AF
158	AS-AFRSIG	Release signal for AF
159	AS-AFRSWSIG	Release SW signal for AF
160	AS-ATOMAKUSW	Closing curtain SW press-contact terminasl
161	AS-BACK	Camera back SW soldering terminal
162	AS-CTL1	AF control 1
163	AS-CTL2	AF control 2
164	AS-CTL3	AF control 3
165	AS-DBCLK	Clock for data back
166	AS-DBH/R	Data back pre-release /release
167	AS-DBH/R	Data back I/O
168	AS-DBI/O	Data back inspection terminal
169	AS-DBTEST	Data back imprinting
170	AS-DBWRT	Data command for AF
171	AS-DC	Data back control I/O
172	AS-DCI/O	DX2 press-control terminal
173	AS-DX2	DX3 press-contact terminal
174	AS-DX3	DX4 press-contact terminal
175	AS-DX4	DX5 press-contact terminal
176	AS-DX5	DX6 press-contact terminal
177	AS-DX6	Filter drive 0
178	AS-FD0	Filter drive 1
179	AS-FD1	End LED cathode
180	AS-FILMENDLED	Reserve
181	AS-FILTER	Pre-release SW
182	AS-HSW	ISO dial output
183	AS-ISO	3.3V for end LED
184	AS-ISO3V	Analog GND for ISO base plate
185	AS-ISOAGND	Ref. voltage for ISO output

CHECKING LANDS (6)

No.	Name	Function
186	AS-ISSW	Is SW output
187	AS-LAE	Lens access enable
188	AS-LD	Lens drive signal
189	AS-N1	Charge motor brake signal
190	AS-N2	Spool motor brake signal
191	AS-N3	Rewind motor control signal 1
192	AS-N4	Rewind motor control signal 2
193	AS-P1	Charge motor driving signal
194	AS-P2	Spool motor driving signal
195	AS-PGND	Power GND
196	AS-R2SW	R2 SW
197	AS-RLSABLE	Release permission
198	AS-RSW	Release switch
199	AS-SC	SC dial output
200	AS-SCAGND	Analog GND for SC dial
201	AS-SCVREF	Ref. voltage for SC
202	AS-SHUT3V	3.3V for shutter
203	AS-SHUT5V	5.5V for shutter
204	AS-SHUTGND	GND for shutter
205	AS-TRIAC	TRIAC control terminal
206	AS-VBAT	Power source
207	AS-VCC1	Power source (after power SW)

CHECKING LANDS (7)

No.	Name	Function
B-1	WLB-CTRL	DC-DC converter control terminal
B-2	WLB-12V	DC-DC converter 12V output
B-3	WLB-5V	DC-DC converter 5.5V output
B-4	WLB-VCC1	DC-DC converter input
B-5	WLB-GND	DC-DC converter GND
B-6	ASB-PCGND	GND for photo coupler
B-7	ASB-PCOA	Aperture photo interrupter output
B-8	ASB-PC3V	3.3V for photo coupler
B-9	ASB-APMG	Aperture Mg signal
B-10	ASB-APGND	GND for aperture Mg
B-11	ASB-AP3V	3.3V for aperture Mg
B-12	ASB-AEL	AE LOCK SW
B-13	ASB-PULSE	Mech. pulse output
B-14	ASB-TV	Tv dial output
B-15	ASB-HOSEI	Compensation dial output
B-16	ASB-TVVREF	Ref. voltage for dial resistor
B-17	ASB-TVAGND	GND for dial resistor
B-18	ASB-ILLUMISW	Illuminator SW output
B-19	ASB-PSAM	Mode dial output
B-20	ASB-TVSELFLED	Self-timer LED cathode terminal
B-21	ASB-TVPC3V	3.3V for Mech. pulse
B-22	ASB-MCHARGE	Charge completion switch output
B-23	ASB-COUNTER	Counter SW output
B-24	ASB-MAKISW	Film advance SW output
B-25	ASB-TV3V	3.3V for self-timer LED
B-26	ASB-TAJYU	Not in use
B-27	ASB-R1	R1 switch output



FAA2305J-R 2248 A

TOOL INSTRUCTION

SERVICE DEPT

J 1 5 2 8 0

1. NAME: Z LENS HOLDER J15280

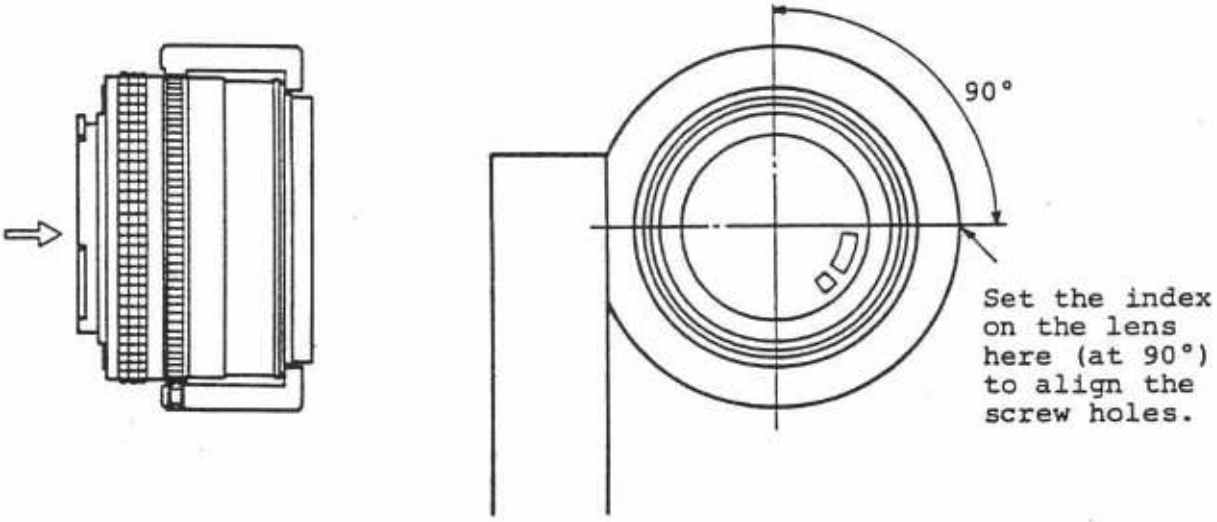
2. PURPOSE: To adjust "Z" in AF SLR camera

3. HOW TO ASSEMBLE:

   1) Mounting Standard Lens for Z Adjustment (J18183)

      a) Remove the meter coupling shoe attached on the aperture ring of J18183.
      b) Remove adhesive agent from the circumference of the aperture index ring (silver ring) of J18183.
         (Do not remove adhesive from the sides of the ring.)
      c) Unfasten three screws on the tube of J15280 with a hexagonal wrench, so that they do not protrude from the inner surface of the tube.

      d) Set J18183 on J15280 as shown below and fasten screws.



      e) Apply Screw Lock on the screws.

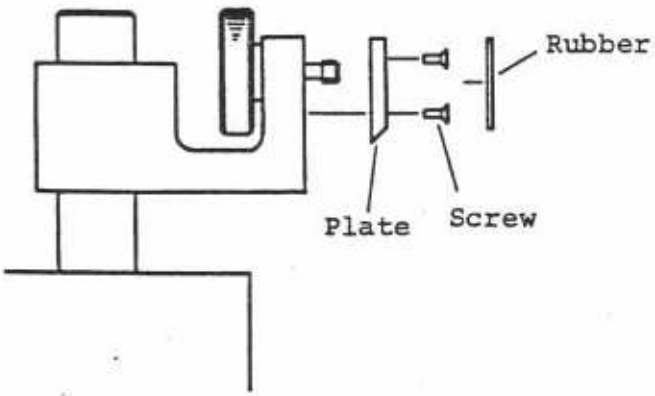
TOOL INSTRUCTION

SERVICE DEPT

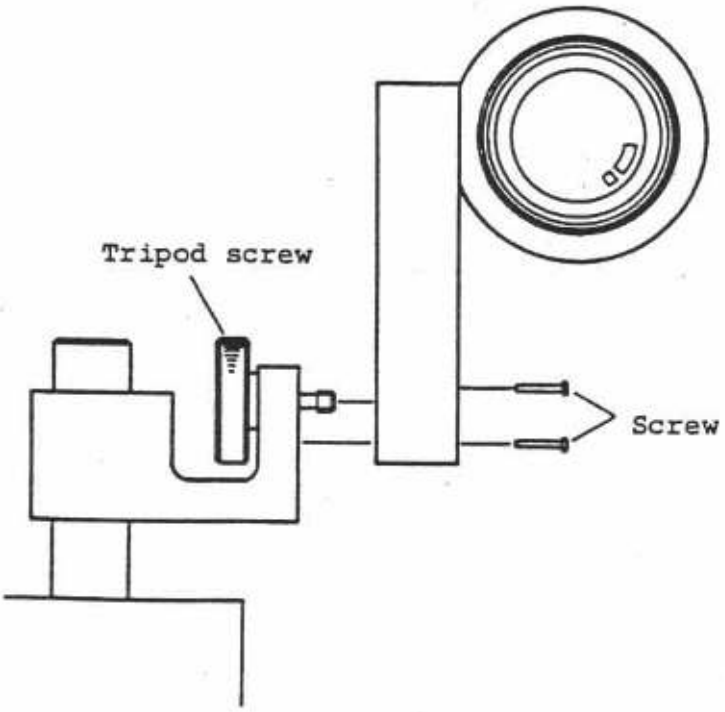
J 1 5 2 8 0

2) Mounting lens holder on AF adjustment stand (J15259)

a) Remove rubber and plate as shown below:



b) Mount J15280 to J15259 with a tripod screw and attached two screws. Adjust each screw so that the optical axis of the lens (J18183) becomes horizontal.



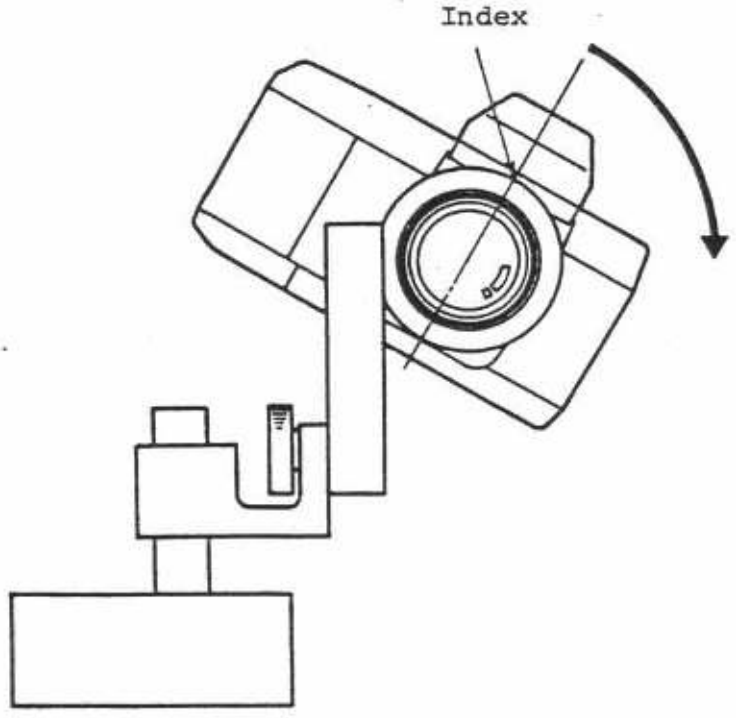
TOOL INSTRUCTION

SERVICE DEPT

J 1 5 2 8 0

4. HOW TO USE

a) Attach a camera to the assembly of J15280, J15259 and J18183. (Align the index of the lens holder with the center line of the camera as shown in the figure below. Then, attach the camera to the lens and turn it in the arrow direction.)



b) Decide the distance between the film plane and the chart in AF illuminator box (J15264).
(Set the distance at the specified one for each lens.)

c) Look into the viewfinder and set the focus brackets at the center of the chart. Adjust the vertical position by moving J15259. Fine adjustment can be made by unfastening each screw.

d) Set J15259 securely.

e) Adjust "Z" of the camera.